In Two Sections—Section Two
January 9, 1930

Engineering News-Record

A Consolidation of Engineering News and Engineering Record

A JOURNAL OF CIVIL ENGINEERING AND CONTRACTING

ISSUED WEEKLY

VOLUME 103

July 1 to December 31, 1929

McGRAW-HILL PUBLISHING COMPANY, INC.
TENTH AVENUE AT 36TH STREET
NEW YORK

54

Engineering Lib
Wahr

INDEX TO ENGINEERING NEWS-RECORD

VOLUME 103—July 1 to December 31, 1929

	Pages
July 4	1 to 42
July 11	43 to 80
July 18	81 to 120
July 25	121 to 158
Aug. 1	159 to 200
Aug. 8	201 to 238
Aug. 15	239 to 278
Aug. 22	279 to 316
Aug. 29	317 to 354
Sept. 5	355 to 396
Sept. 12	397 to 438
Sept. 19	439 to 478
Sept. 26	479 to 516
Oct. 3	517 to 558
Oct. 10	559 to 596
Oct. 17	597 to 636
Oct. 24	637 to 674
Oct. 31	675 to 712
Nov. 7	713 to 754
Nov. 14	755 to 792
Nov. 21	793 to 832
Nov. 28	833 to 870
Dec. 5	871 to 912
Dec. 12	913 to 950
Dec. 19	951 to 990
Dec. 26	991 to 1028

A

ACCIDENTS AND ACCIDENT PREVENTION
- Armco makes safety record 504
- Sand hogs trapped when gang cuts caisson air line, Hackensack, N. J. n866, e871
- Caisson attackers, New Jersey, indicted for murder n1022
- Steamer "Norman"; U. S. will settle claims n474
- (See also Bridge accidents; Building accidents; Construction, safety measures; Explosions; Highway accidents.)

Adzing machine for railway maintenance (Nordberg Mfg. Co.) n*157

AERONAUTICS
- Airplanes:
  - Contractor uses airplane for wide variety of work j147
  - Passenger plane designed for 43-ton landing shock 931
- Airports:
  - Airports on building roofs n866, e914
  - Akron develops airport for planes and dirigibles *414
  - Algiers, La., Navy to construct airport n634
  - Drainage of airports, C. A. Hogentogler and F. A. Robeson *853
  - Floating airports in the Atlantic 218
  - Meeting airport needs with highway practices; papers presented at conference of A.R.B.A. *853
  - Mexico City to have airport n435
  - Municipal airport conference, Washington, Oct. 24-25 ..... n707
  - The next step e203
  - Pittsburgh field to be remodeled n511
  - Pittsburgh to develop airport under difficult conditions, G. B. Ross *17
  - St. Louis municipal airport, drainage and runway studies, e715; W. W. Horner *716
  - Salem, Ore., new municipal airport n189
  - San Francisco, meteorological survey for airport 141
  - San Francisco, two large terminals under construction n706
  - Surfaces of airports, C. N. Conner *855
- Airship dock, Akron, O., weighted cables raise 360-ton arches e872, *874
- Airship docks, Goodyear-Zeppelin, electric equipment for operating doors, W. C. Raube *1008

Air traffic:
- Model law proposed for local use e517, n545

Airways:
- Canadian airways, lighting contracts awarded n548

Airways and airports, Arkansas highway department to aid development n349

Dirigibles:
- Dirigible has its day—Transportation development e355
- "Graf Zeppelin," fuel for 461
- Navy's new airship, laying the first ring n*828
- Metal-clad dirigible airship 461
- Two large dirigibles built for U. S. Navy 262

Goodyear Company extends activities n825

Hangars:
- Akron, O., construction of largest dirigible hangar n*31
- All-metal hangars at $1.10 per sq.ft., Los Angeles *449
- Hexagonal hangar with six doors, Los Angeles j*67

Landing, on building, in Los Angeles n866, e914

Lighted streets, Cheney, Wash., guide aviators j309

Maps. (See Maps and mapping.)

Ownership in the heavens e279

Road labels aid aviators 609

Air compressors. (See Compressed air.)

Alloys, new facing metal to give wear-resisting surface (Commercial Alloy Corp.) n389

ALUMINUM
- Lighter structures—important development in the industry, R. L. Streeter. I—What the high-strength alloys of aluminum can do. *487. II—New Massena mill will roll plates and shapes of strong aluminum alloy e519, *535

American Association of Engineers:
- Establishes welfare award n33
- Meeting, Chicago, Oct. 11-12 ..... n631

American Association of Port Authorities, formal incorporation n592

American Association of State Highway Officials:
- Executive committee, meeting, June 3 ..... n32
- Meeting (annual), 5th, San Antonio, Nov. 12-15 ..... n707, e835
- Emphasize finance n825

American Concrete Institute:
- Nominations for next convention n631

AMERICAN ENGINEERING COUNCIL
- Acts on pending legislation n708
- Appoints committees to aid government e159, n188
- Irresponsible statements of engineers, e756; A. W. Berresford l942

American Institute of Steel Construction:
- Announces award for artistic bridge n33
- Pittsburgh bridge wins award n*743, e834
- Convention (annual), 7th, Biloxi:
  - Record meeting e795, *809
- New plan of sales promotion n237

American Public Health Association, meeting, Minneapolis, Sept. 30 to Oct. 4 ..... n592

American Railway Bridge and Building Association, meeting (annual), New Orleans, Oct. 15-17 ..... n708

AMERICAN ROAD BUILDERS ASSOCIATION
- Airport conference, Washington, Oct. 24-25 ..... e675, n707
- Manufacturers division to expand activities n791
- Meeting, Atlantic City, Jan. 13-18 ..... n1023
- Official nominations for 1930-31 ..... n631

American Society for Municipal Improvements, meeting, Philadelphia, Oct. 14-18 ..... e637, 658, n670

American Society for Testing Materials:
- Meeting, Atlantic City, June, 1929 ..... e1, 19
- Committee work and research results reported e43, 63

AMERICAN SOCIETY OF CIVIL ENGINEERS
- Convention (annual), Milwaukee, July 9-12 ..... e81, e82, 105
- Regional meetings to be emphasized n73
- Dictatorial policy throttles discussion, C. R. Harte, 1628; F. Lavis l737
- Honorary members elected n630
- Meeting, Boston, Oct. 9-11:
  - Regional engineering discussed, e597, n548, 613; F. Lavis l737
- Time for new garments? e992

American Society of Mechanical Engineers, fiftieth anniversary to be celebrataed n743

AMERICAN WATER WORKS ASSOCIATION
- Annual convention, Toronto, June, 1929, e2, a*23, n30
- Central States and Wisconsin Sections meet n510
- Central States Section, meeting, Detroit, Sept. 16-20 504
- Missouri Valley Section meeting, Sioux Falls, Nov. 6-8 ..... e675, n788

AMERICAN WELDING SOCIETY
- Meeting (annual fall), Cleveland, Sept. 9-13:
  - Considers methods of testing e441, *463
- Provisions of code for structural welding e83, 92, e202

American Wood Preserver's Association:
- Convention (annual), 26th, Seattle, Jan. 28-30:
  - Visit timber-treatment plants n831

Aqueducts:
- Colorado River, engineers chosen to select route n432, n*984
- Vyrnwy aqueduct, Eng., cleaning brush lost and found again, J. R. Davidson l1021
- Wanaque aqueduct, N. J., bonus offered to speed work n786

Arches:
- Bridge. (See Bridges.)
- Dam. (See Dams.)

Architects:
- And engineers, e519; A. V. Sheridan, 1666; D. M. Oltarsh l702
- Indiana law held not applicable to state buildings e81, n114

ASPHALT
- Plant designed for easy transportation (Madson Iron Works) n*1027
- Three associations hold combined 4-day conference n741
- "Unicrete" has many uses (Union Products Co.) n*712

Asphalt Paving Conference:
- Meeting (annual), 8th, West Baden, Ind., Oct. 29-31:
  - Improvement of secondary roads discussed e715, n741, 777
  - Program announced n385

Associated General Contractors:
- G. B. Waldbridge appointed temporary manager n1023
- Harmful trade practices, report on n830
- Prequalification discussed n672

Atchafalaya floodway. (See Mississippi River.)

Automobiles. (See Highway accidents; Motor vehicles.)

AWARDS
- Advertising award, entries sought n673
- American Ass'n of Engineers establishes welfare award n33
- A.I.S.C., award for artistic bridge n33, n*743, e834
- Edison medal awarded to *Prof.* C. F. Scott of Yale n1024
- Gas welding prizes offered by A. Milburn Co., Maryland n831
- John Fritz medal awarded to R. Modjeski n546

B

Baltimore, Md., duration of rainfall and sunshine *53

Barge-line rates e756, n790

Bauer, J. L., succeeds Sloan as N. J. highway engineer n152

BEAMS
- Auxiliary welded beams permit use of old columns to carry added load, R. M. Wilder j*308
- Chart for beam design gives equivalent distributed loads, E. McCullough, j*586; correction l664
- Hangar supports forms for beam encasement (Dayton Shore Grip & Shore Co.) n*747
- New welded girder splice for I-beams, A. W. Schenker j*507
- Shortcut for beam computations uses moment in foot-tons, F. Wright j147
- Stresses in curved beams studied by plaster-model tests 733

Bell, *Col.* J. F., retires from army n788

Belt conveyors. (See Conveyors, belt.)

Bids. (See Contracting.)

BLASTING
- Dynamite removes reinforced-concrete counterweight on high crane j*1020
- High concrete stack razed by blasting, E. Nordstrom *775
- New ditch-blasting methods j*1019
- St. Francis dam, standing section razed with dynamite *51
- San Gabriel dam, east abutment leveled 126

Blueprints. (See Drawing and drawings.)

Boeuf floodway. (See Mississippi River.)

BONDS
- Cape Girardeau bridge company defaults on bonds n547
- Chicago bond issues defeated e755, n786
- Highway. (See Highway economics.)
- Rio Grande conservancy district court approves bond issue n512
- Sacramento to vote on bond issue for new water supply n510
- Defeats issue for water supply n668
- San Francisco, bond sale assures purchase of water system n983
- Seattle City authorizes bond issue n76
- Tampa, Fla., to vote on airport bond issue n741
- Votes bonds n901
- Texas district sells irrigation bonds n1024

Bonnet Carré spillway. (See Mississippi River.)

BOOK REVIEWS
- Art of rapid reading (W. B. Pitkin) 826
- Barrages conjugues et bassins de compensation (G. Laporte) 821
- Basic principles of concrete making (F. R. McMillan), reviewed by H. E. Squire 979
- Building construction (W. C. Huntington) 979
- Civil airports and airways (A. Black) 108
- Construction of roads and pavements (T. R. Agg) 980
- (Les) defauts des mortiers et des betons (J. Malette) 981
- Down the world's most dangerous river (C. Eddy) 820
- Early Columbia engineers (J. K. Finch) 981
- Economics of highway brdige types (C. B. McCullough), reviewed by S. B. Slack 207
- Electrical utilities (W. E. Mosher, ed.) 820
- Elementary structural problems in steel and timber (C. R. Young), reviewed by R. Fleming 468
- Engineering for masonry dams (W. P. Creager), 2nd ed. 110
- English and science (P. B. McDonald) 978
- Epochs in American banking (N. F. Hoggson) 469
- Expository descriptions—technical writing (V. Solberg) 821
- Forty years with General Electric (J. T. Broderick) 982
- Government purchasing (R. Forbes) ... 980

*Illustrated: a, abstracts; e, editorials; j, job and office; l, letter; n, news

Handbook of building construction (G. A. Hool & N. C. Johnson, eds.), reviewed by R. W. Boyd 624
Handbuch der neuen Strassenbauweisen (W. Reiner), reviewed by H. M. Lewis 109
Higher arithmetic (F. A. Smith) 822
Highway location and surveying (W. W. Crosby and G. E. Goodwin) 980
History of mechanical inventions (A. P. Usher) 109
History of Sheffield Scientific School (R. H. Chittenden) 267
Ideals of engineering architecture (C. E. Fowler), reviewed by C. M. Spofford. 467; correction 627
International airport (S. S. Hanks) ... 979
Life of George Jaffey (J. A. Alexander) 110
Local government (Scotland) Act, 1929 (W. E. Whyte) 982
Man the miracle maker (H. Van Loon) 109
Men and machines (S. Chase) 469
Modern aviation engines (V. W. Pagé) ... 626
(The) new exploration—regional planning (B. MacKaye) 268
Moscow sewerage works bulletins, reviewed by G. M. Fair 822
Oxyacetylene welder's handbook (M. S. Hendricks) 822
Public cleansing (Birmingham Corp. Salvage Dept.) 980
Railway engineering and maintenance cyclopedia (E. T. Howson, ed.) 626
(The) rat—a world menace (A. M. Hogarth) 981
Report writing (C. G. Gaum and H. F. Graves) 469
Roadside development (J. M. Bennett). 469
Rohr Brunnen (E. Bieske), reviewed by H. L. White 625
Romance of the rails (A. C. Laut) 821
St. Lawrence navigation and power project (H. G. Moulton and others) 468
Shipways to the sea (E. S. Clowes) ... 468
Soviet Union looks ahead 624
Standard practice in sheet metal work.. 626
Standard specifications for concrete (Can. Engrg. Stand. Assn.) 467
Steam and gas engineering (T. E. Butterfield), reviewed by C. H. Berry.. 821
Story of the Baltimore & Ohio railroad (E. Hungerford) 625
Story of the weather (E. Van Cleef).... 981
Story of water supply (H. Holway).... 823
Stresses statically determined (J. C. Tracy), reviewed by R. Fleming.. 269
Textbook on highway engineering (D. P. Krynine), reviewed by S. A. Vassiliev 625
Theorie der Gewichtsstaumauern (K. Kammüller), reviewed by F. A. Noetzli 108
Transportation in the Mississippi and Ohio valleys (Govt. publ.) 822
Valuation of public service corporations (R. H. Whitten), reviewed and enlarged by D. H. Wilcox 108
Water engineer's pocket book and directory 468
Water supply engineering (H. E. Babbitt and J. J. Doland), reviewed by J. H. Gregory 978
Ways to national prosperity (C. E. Grunsky) 981
Wood construction (D. F. Holtman), reviewed by C. R. Young 268
Boulder dam. (see Colorado River.)
Breakwaters:
Milwaukee, protecting lake harbors....n904

BRICKS AND BRICKWORK

Bricklaying research at Mellon Institute. 733
Compressive and transverse strength.... 383
Face brick industry trade practice rules approved n635
Strength of brick walls determined by Bureau of Standards 808
(See also National Paving Brick Manufacturers Association.)

BRIDGE ABUTMENTS AND PIERS

Lake Champlain bridge, deep foundations built with open cofferdams....e795, *797
Novel sinking equipment for steel cylinder foundations, Florida bridges.....*959
Tall pier construction in engine roundhouse. P. A. Franklin *450

BRIDGE ACCIDENTS AND FAILURES

Colorado washout causes train wreck..n152
Hackensack River bridge, Lincoln Highway:
Analysis of dynamic stresses, e319: C. E. Paine *340
Behavior of a pendulum suspended from a rotating shaft. P. W. Ott..l*784
Calculated stresses in counterweight tower. H. Cross l*784
Counterweight removed from river... 689
Discussion and rebuttal on the bascule failure—list of articles and letters in *News-Record* 783
Models verify observed behavior of bascule *426
Reply of investigating board.....l785
Sand Springs bridge, Okla., collapses when struck by motor truck.....n*433
South Carolina bridge over Little Saluda River, wrecked by flood.....n*669
Tacony-Palmyra bridge, high wind breaks hangers, n633, e637; F. P. Witmer..l824
Bridge demolition:
Dismantling two long suspension bridges, Mount Hope and Detroit bridges.... *562, e676

BRIDGE DESIGN

Columns, large-size, tests of three grades of structural steel, e992; R. S. Johnston *999
Pittsburgh bridge wins award..... n33, n*743, e834
Pittsburgh, Sixth St. bridge over Allegheny River, design history of most artistic bridge.....1015
Railing, precast concrete, allows future shift *847
Steel column tests, Fort Lee and Kill van Kull bridges e239
Stream study and bridge design.....e597
Test model used in design of Kill van Kull arch bridge j*586
Welded bridges, specification for arc-welded connections, e281; G. D. Fish.*292

BRIDGE ERECTION

Oklahoma City, South Robinson St. bridge, concrete caissons cast in place with quick-hardening cement. G. N. Berry j*306
Pneumatic caissons sunk 110 ft. for Vicksburg bridge, e397; R. G. Stowell *422
Tall pier construction in engine roundhouse, Detroit. P. A. Franklin....*450
Temporary struts resist arch thrusts..j*662
Traveling gallows frame used in placing 125-ft. girders. C. R. St. Clair.....*375
Unique construction procedure on long-span concrete arches at Brest..e677, *691

BRIDGE RENEWALS AND REPAIRS

Colorado River bridge at Blythe, Calif., rebuilding *683
Duluth bridge span lifted.....n703
Girders repaired by arc welding.....j*506
Harahan bridge, Memphis, repaired after fire without dismantling, e201; H. A. Wiersema *226
Turnbuckles welded into eyebar diagonals, bridge near Pittsburgh. H. F. Cole..j*585

BRIDGE STRESSES

Concrete arch bridge, measuring strain and temperature, e318; S. B. Slack, *337; A. H. Fuller l543
Hackensack bascule, analysis of dynamic stresses—Counterweight tower action, e319; C. E. Paine *340
Models verify observed behavior.....*426
Wind breaks hangers, n633, e637; F. P. Witmer l824
Bridge traffic:
Delaware River bridge, Philadelphia-Camden, N. J., traffic heavy, e81; J. K. Costello *104
San Francisco, traffic survey for proposed bridge n947

BRIDGES

Arch:
Berks Co., Pa., some features of two reinforced concrete arch bridges. L. F. Christman *15
Concrete arch bridge of open spandrel type aids highway relocation, Santa Cruz Co., Calif. D. M. McPhetres.*815
Concrete arch bridge over Susquehanna River n*509
Kill van Kull. (See Bridges, Kill van Kull.)
Market Street bridge across Susquehanna River, opened n*788
Measuring strain and temperature in 160-ft. concrete arch bridge, e318; S. B. Slack, *337; A. H. Fuller..l543
Steel arch bridge over Vance Creek, adjusted to closure by cable tiebacks j*68
Steel arch of 800-ft. span to cross Ohio River, Allegheny Co., Pa.....*185
Sunderland, Eng., new steel arch bridge across the Wear opened.....n828
Sydney harbor, Australia n*351
Temporary struts resist arch thrusts..j*662
Unique construction on long-span concrete arches at Brest e677, *691
Baltimore highways bureau, bridge division authorized n272
Big Creek, steel bridge, traveling gallows frame used. C. R. St. Clair.....*375
Brest, France, long-span concrete arches. e677, *691
Cantilever:
Columbia River bridge at Longview, n33
Cooper River bridge, S. C., opened to traffic n*273
Montreal South Shore bridge, closure...n154
Montreal-South Shore bridge nearing completion n*474
Vicksburg, Miss., pneumatic caissons for bridge, e397; R. G. Stowell....*422
Canyon City, Colo., highest suspension bridge n*703
Cape Fear River, N. C., two bridges near completion n904
Chicago, footwalk suspension bridge in park *221
Chicago, rapid erection of bascule bridge in emergency *527
Cincinnati, silicon steel continuous truss bridge over Ohio River *734
Clark St. bascule bridge over Chicago River, steel delivered in carloads by barge to site j230
Clearances. A. W. White l71
Colorado River, at Blythe, Calif., rebuilding bridge after collapse n152, *683
Columbia River, Rainier-Longview:
High bents for trestle approaches....j*69
Progress n33
Concrete:
Florida, bridges, steel truss with concrete floors over St. Andrews Bay..*959
(See also Bridges, arch.)
Continuous bridges e598
Cooper River bridge, Charleston, S. C., opened to traffic Aug. 8.....n*273
Delaware River, Tacony-Palmyra bridge:
Opening e239, n*310
Temporary repairs made, n633, e637; F. P. Witmer l824
Del Rio, Tex., and Villa Acuna, Mex., pneumatic caissons improvised from open cylinders. P. B. Tartt.....*851
Detroit, Ambassador bridge:
Dismantling *562
Opening *766
Detroit suspension bridge, approach over roundhouse. P. A. Franklin *450
Duluth bridge converted into lift bridge..n703
Firth of Forth, Scotland, highway bridge proposed n349
Florida, two bridges over St. Andrews Bay, steel truss with concrete floors..*959
Fort Lee and Kill van Kull bridges, tests of steel columns, e992; R. S. Johnston *999
Fort Lee suspension bridge over Hudson River:
Building footwalks n*348
Cable work begun.....e676, n706
Concrete casing of steel tower columns adds to strength 372
First cable connects towers..... n75
Influence of great projects.....e952
Tests on models of columns completed 690
Grand Mere, Quebec, new toll bridge opened n*272
Grand Mere, Quebec, rope-strand suspension bridge. D. B. Steinman.....*841
Hackensack bridge. (See Bridge accidents and failures.)
Halifax Harbor, new bridge planned..n234
Hamburg and Birdsboro, Pa., two concrete arch bridges. L. F. Christman.. *15
Hudson River. (See Bridges, Fort Lee.)
Kill van Kull bridge, S. I.-N. J.:
Steel erection to start n*546
Test model used in design.....j*586
Lake Champlain bridge dedicated Aug. 26 .....n*232, e239
Lake Champlain bridge, deep foundations built with open cofferdams e795, *797
Louisville municipal bridge, financing.. 690, e871
Louisville municipal bridge to be opened Oct. 31 .....n*667
McKees Rocks bridge, Allegheny Co.....*185
Market Street bridge across Susquehanna River between Wilkes-Barre and Kingston, Pa. n*788
Montreal South Shore bridge over St. Lawrence:
Cantilever closed n154
Nearing completion n*474
Mount Hope bridge, R. I.:
Completed and in service n*739
Dismantling *562, e676
Movable:
Chicago, Clark St. bridge.....j230
Duluth bridge converted into lift span..n703
Hackensack bascule bridge. (See Bridge accidents.)
Lift span of San Mateo bridge floated to site and lowered with tide.....j*149
Motors and control for movable bridges. H. W. Pittenger.....*970
Rapid erection of Chicago bascule bridge *527
Seattle bascule bridges, city develops non-infringing design *968
Verticle lift span of Newark Bay bridge floated into place e*73, e121, *134
Newark Bay bridge:
Raising 322-ft. lift span from bottom of bay e121, *134
Vertical lift span floated in place....n*73
New Jersey highway commission builds high-level bridges n629, n985
New Orleans, Chef Menteur bridge opened n473
New Orleans, Hero-Hackett bridge again disapproved n117, e121
New application filed.....n986
New York City:
Tri-borough bridge: First bids to be called n593
Planned across East River at Hell Gate *622
Work to begin n75
(See also Bridges, Fort Lee; Kill van Kull.)
Ohio River crossing of Big Four at Louisville, new steel bridge of unusual design. J. B. Hunley.....*358, e397
Oklahoma, five new state-owned bridges authorized n153
Pittsburgh, Sixth St. bridge wins design award n*743, e834
Design history of most artistic steel bridge 1015
Pittsburgh, West End bridge over Ohio River authorized n117
Poland, electrically welded bridge opened 847
Quequen bridge, Argentine, 32-rope cable suspension system used. C. G. Gerstrom *881
Railway:
B. & O. continuous truss bridge at Cincinnati *734
Big Four renews old bridge over Ohio at Louisville. J. B. Hunley.. *358, e397
Chicago & Northwestern Ry., plate girders strengthened by welding on new material *230
French mountain railway, difficult tunnel and bridge work *9
Lehigh Valley-Penn. R.R. bridge, Newark Bay. (See Bridges, Newark Bay.)
Pennsylvania R.R., new Big Creek bridge. C. R. St. Clair *375
Rochester, new bridge across Genesee River n*188

*Illustrated: a, abstracts; e, editorials; j, job and office; l, letter; n, news

Royal Gorge, Colo., suspension toll bridge under construction n311, n*703
Dedicated n985
Rushville, Ind., covered highway timber bridge n*114
St. Lawrence River, bridge between New York and Ontario proposed by Governor n709
St. Louis municipal bridge, problems overcome in building approach. M. H. Doyne *649
Salinas River bridge, Calif., precast concrete railing allows future shift....*847
Sandusky Bay, O., concrete and steel bridge completed n*33
San Francisco-Alameda County Bay Bridge:
Commission begins investigation.....n633
Traffic survey for proposed bridge..n947
San Francisco, Golden Gate project upheld by court n233
Engineers elected n351
San Mateo-Hayward toll bridge, lift span floated to site and lowered with tide.j*149
Santa Cruz Co., Calif., concrete arch of unusual design aids highway relocation. D. M. McPhetres *815
Savannah River near Augusta, Ga., new bridge planned n704
Seattle bascule bridges, 8 years of litigation *968
Seattle, porcelain tubes incase reinforcing bars for sea water protection.j*229
South Africa, steel bridge across Limpopo River opened n744
Steel:
Award for most artistic steel bridge. n33, n*743, e834
Prizes awarded to students for drawings *220
Harahan bridge repaired after fire without dismantling, e201; H. A. Wiersema *226
(See also Bridges, arch.)
Sunderland, Eng., new steel arch bridge across the Wear opened n828
Suspension:
Ambassador bridge. (See Bridges, Detroit.)
Cable, 32-rope, suspension system on South American bridge. C. G. Gerstrom *881
Footwalk suspension bridge in Chicago park *221
Fort Lee. (See Bridges, Fort Lee.)
Mount Hope bridge. (See Bridges, Mount Hope.)
Pittsburgh, Sixth St. bridge. (See Bridges, Pittsburgh.)
Plate chains a feature of Tokyo bridge *533
Rope-strand bridge at Grand Mere, Quebec. D. B. Steinman *841
Royal Gorge, Colo.:
Dedicated Dec. 8.....n985
Highest suspension bridge in the world n*703
One-span bridge n311
Toledo, O., bridge across Maumee River, planned n*548
Susquehanna River bridge for the Lincoln Highway n*509
Sydney harbor, Australia, building arch bridge n*351
Toyko suspension bridge has plate chains.*533
Toledo, O., to build bridge across Maumee River n*548
Toll bridges:
Against toll bridges. C. K. Mohler..l 151
Canyon City, Colo., Royal Gorge bridge.....n311, n*703
Columbia River bridge at Longview. n33
Delaware River, Tacony-Palmyra bridge, opening e239, n*310
Financing on income e871
Fort Lee. (See Bridges, Fort Lee.)
Grand Mere, Quebec, new toll bridge opened n*272
Lake Champlain. (See Bridges, Lake Champlain.)
Louisville, new municipal bridge across Ohio River, bonds based on bridge income finance toll structure..... 690
New toll bridges: Lake Champlain & Delaware River at Tacony e239
San Mateo-Hayward bridge, Calif....j*149
Vicksburg, bridge across Mississippi, pneumatic caissons sunk 110 ft., e397; R. G. Stowell *422
Vicksburg, Miss., pier pushed out of line by slide n509
Washington, D. C., multiple-arch bridge across Potomac n*1022
Yugoslavia, second bridge over Danube planned 256
Brown, *Gen.* Lytle, named Chief of Engineers n472, e479, n513, n*545

BUCKETS

Clam-shell:
Adapted to rocky excavations. H. C. Charles j664
Largest in the world (G. H. Williams Co.) n*194

BUILDING ACCIDENTS AND FAILURES

Alabama, collapse of 3-story department store in Montgomery n115
Chicago, fatal hoisting accident n742, e757
Chicago, second hoisting accident.....n947
Concrete girder fails as doorway is cut through web e280, *300
Public deserves protection e757
(See also Construction, safety measures.)
Building alteration and repair:
Boca Raton Club, Fla., auxiliary welded beams. R. M. Wilder j*308
Extra stories added to steel frame building. J. G. Allen *574

BUILDING CONSTRUCTION

Falsework for 104-ft. dome, Los Angeles temple. Z. Witkin *257
Frame wall construction, tests by Forests Products Laboratory, e638; G. W. Trayer *656
Progress and overtime balanced to speed schedule, e239; J. G. Ahlers.....*250
Rapid construction of reinforced-concrete warehouse by standard methods. J. F. Miller 485
Building demolition:
Truck crane on sidewalk bridge used to lower floor timbers.....j*307
Washington adopts new rules for razing buildings n190

BUILDING DESIGN

Beams. (See Beams.)
Columns. (See Columns.)
Concrete:
Capitol dome, reinforced concrete, Olympia, Wash. D. C. Coyle..... *90
40-story Union Trust Bldg., reinforced concrete, Detroit. W. S. Wolfe.... *4
McGraw-Hill Bldg., cast-iron cores used in columns *129
Earthquake-resistant construction reviewed for seismologists.....n114
Floors. (See Floors.)
Portable buildings designed for easy assembly (White Castle System).....n*551
Steel and concrete framing in tall Chicago building 969
Welded buildings:
Boca Raton Club, Fla., auxiliary welded beams. R. M. Wilder j*308
Florida packing houses.....j*306
Laboratory of Union Carbide Co. at Niagara Falls, e953; H. M. Priest and H. H. Moss *964
Tall power house frame, Atlantic City, electrically welded *376
300-ton mill building, Niagara Falls, gas-welding, e913; H. M. Priest and H. H. Moss *928
Wind-resistant:
Storm hazards become definite.....e559
Structural features of a tall building tower and its wind system. New York City e161, *162

BUILDING LAWS AND REGULATIONS

New York State, multiple-dwelling law:
Architects and engineers, e519; A. V. Sheridan, l 666; D. M. Oltarsh.....l 702
Upheld by state court n273
Requirements for exits standardized.... 883
Teeth for building codes.....e991
Wisconsin, defective practice..... 575
(See also Construction, safety measures.)

BUILDINGS

Air-rights warehouse over freight terminal, Chicago *325
American cities, buildings 10 or more stories high 170
Birmingham, Ala., steel frame building, extra stories added. J. G. Allen.....*574
Cedar Rapids, Ia., Memorial Bldg. and City Hall n*386
Chicago:
Daily News Bldg., air-rights structure, completed n*190
McGraw-Hill Bldg., unusual structural features *129
Merchandise Mart, large plant of belt conveyors place concrete...e398, *420
Merchandising Mart, world's largest building under construction n*826
Tacoma Bldg. obsolescent after 40 years e992, 1003
Trustees System Bldg., steel and concrete framing 969
Two theatres in office building. E. A. Magurn *759
Cleveland, hotel, steel bar joist construction *289
Concrete:
Largest in the world planned in London n705
(See also Building design, concrete.)
Contest skyward, tall buildings in New York e356
Detroit, Union Trust Bldg., simultaneous steel erection and basement excavation. W. S. Wolfe *4
Flint, Mich., auditorium of Industrial Mutual Assn. W. S. Wolfe *801
Garages. (See Garages.)
Germany erecting first skyscraper hospital 765
Industrial buildings:
Massena mill to roll shapes of aluminum alloy, e519; R. L. Streeter *535
Mill building, 300-ton, gas-welded, Niagara Falls, e953; H. M. Priest and H. H. Moss *964
300-ton mill building, Niagara Falls, gas-welding design, e913; H. M. Priest and H. H. Moss *928
Warehouses. (See Warehouses.)
Laboratories:
Moderate-cost testing laboratory, N. C. State College. H. Tucker.....*608
Living structures e598
Loading space within buildings advised 131
Los Angeles, Elks Club, concrete fails as doorway is cut through web....e280, *300
Los Angeles, temple, falsewoork for construction of 104-ft. dome. Z. Witkin..*257
Nebraska State Capitol near completion..n*786
New Orleans, La., municipal auditorium..n*549
New York City:
Abraham & Straus department store, foundations built under occupied basement, e430; W. T. McIntosh..*452
Central Union Trust Co., underpinning old 17-story Manhattan Life Building, e201; G. W. Glick *214
Chrysler and Bank of Manhattan buildings, two tallest n*901
Chrysler Building:
Approaches completion n744
New alloy steel used n119
City Bank-Farmers Trust Company plan 925-ft. building n*706
Consolidated Gas Co., tall building tower and its wind system..e161, *162
France plans 65-story building.....n274
High building planned for site of Waldorf-Astoria e356, n385
Office building, 58-story, Fifth Ave. & 42nd St. n152
Riverside church world's highest....n*115
Olympia, Wash., design of Capitol dome. D. C. Coyle *90
Seattle, to erect bldg. for city light department n1023
Sentiment or service—heights of buildings e714
Stadiums. (See Stadiums.)
Theatres:
Chicago, two theatres in office building. E. A. Magurn *759
Stratford-on-Avon, moving picture theatre, heavy steel framing.....n*116
Toronto, Bank of Commerce, British Empire's highest building 227

BULKHEADS

Concrete wall with wave-deflecting parapet built at Chicago *920
Bulldozers:
For heavy work (Baker Mfg. Co.)....n*746
Small, for light work (La Plant-Choate Mfg. Co.) n*437
Tractor-mounted, hydraulic control on (Amer. Tractor Equip. Co.).....n*277
Business:
And prudence e991
As to some controversies.....e991
Formation of smaller committee to carry on work of stabilization.....n984
Hoover calls for co-operation from industry e793, n864
Hoover conference acts to maintain business e913, n944
(See also Industry.)

C

Cable cutter operates on ratchet principle (Morse Starrett Products Co.) n*551
Cable tie-backs to adjust bridge arch span..j*69
Cables:
Dipping ends of cable strands in solder facilitates splicing. E. Sterrett j148
High-voltage submarine cables laid under Delaware River 1004
Special cable acts as switch (Bishop Wire & Cable Corp.) n990
Submarine cables to carry 11-kv. lines planned for Calif. n75
Telephone cable-laying, underground long-distance, Mo. n115
(See also Bridges.)
Cableways. (See Tramways, aerial.)

CAISSONS

Concrete caissons cast in place with quick-hardening cement. G. N. Berry j*306
Manhattan Life Bldg., N. Y. C., old structure founded on pneumatic caissons. e201; G. W. Glick *214
Pneumatic caissons improvised from open cylinders. P. B. Tartt *851
Pneumatic caissons sunk 110 ft. for bridge, e397; R. G. Stowell *422
Camera for copying field notes cheaply. N. Meyer j*67
Canadian Good Roads Association, convention (annual), 16th, Sept. 17-19 .....n511

CANALS

Irrigation canal, 25 mi. long for Rio Grande valley n351
Leeds ship canal discussed 421
Lining canals with concrete, Yakima project *722
Locks:
Welland Canal lock nearly completed. 299
Welland canal, lock no. 8 opened....n511
New York State barge canal, adverse report on deepening n827
Nicaraguan surveys by U. S. army engineers n*631
Maj. Sultan in charge n115
Panama Canal, work done by the French. A. S. Zinn *290
Roumania planning a ship canal 332
Yakima project, building high-head siphons *763
(See also Drainage; Excavation; Hydro-electric power plants; Land reclamation.)
Capstan with two types of motive power (Lidgerwood Mfg. Co.) n*193
Car ferries. (See Ferries.)
Cast iron:
Researches of A. S. T. M. e44, 63
(See also Pipe.)
Catch-basin inlets on hillside street. H. W. Heilmann *852
Cattle guard, railway, conical rollers used (Conical Roller Cattle Guard Corp.)...n*390

CEMENT

Boxes on trucks separate cement from aggregates (G. O. Harm Co.) n*949
Bulk cement pumped across river for highway job. M. Kind *879
Denver upheld in preference for Colorado cement. n740

Fundamentals and cement n1; 19
Missouri to buy large quantity for road construction n947
Price discounts n672
U. S. Steel buys Atlas Cement Co. .. n989, e991
Census:
Distribution census to cover contracting . n313
Manufacturers' census will cover new subjects n635
Officials ask advice of manufacturers . . . n315
Charts:
Contour charts simply design problems. R. C. Reese j*661
Chicago:
Engineer celebrates 40 yrs. of city service n435
International exposition, 1933:
Nat'l Res. Council to cooperate n234
Plans n744
New rapid-transit plan proposed n743
Tax muddle e952

CHICAGO DIVERSION OF WATER FROM GREAT LAKES

Final arguments in the case n594
Final hearing before Hughes, Sept. 23 . . n510
Hughes reports to Supreme Court n983, e993
Inland Waterways Corp. requests additional diversion n475
Sanitary district complies with conditions n1024
Six states oppose diversion n191
Chile has $200,000,000 fund for city and state public works 803
Chlorinator, portable, changes in (Paradon Mfg. Co.) n*551

CITIES

Atlanta, Ga., quintuples its area n348
Government:
Cleveland, city manager plan under fire n232
Retains plan n348
Indiana law held unconstitutional . . . n545
Maine towns and manager government n473
Ohio cities vote on changes in government n384
Portland, Me., votes to retain city manager n434
St. Paul votes on council-manager plan n706, n828, e871
How city requirements grow e559
Increasing city efficiency e795
Pittsburgh, creation of metropolitan city defeated in election n74
Court rules against resubmission of charter 629
Virginia, taxpayers object to paying twice for improvements 698
Traffic. (See Street traffic.)
(See also International City Managers Assn.; Pavements; Regional engineering; Streets.)

CITY PLANNING

Harvard School undertakes researches . . n947
Harvard to have new school . . . n384, n*708
New York state, recent city and regional planning. G. B. Ford 94
San Antonio, Tex., to develop city plan n788
Zoning:
Appeal actions set aside in Passaic, N. J., and in Chicago n902
Change in Chicago law made and repealed n152
Reform needed, e637; G. H. Herrold . . 1824

CIVIL SERVICE

Bur. of Reclamation, senior mathematician n434
Commissions, curbing e560
New York state, positions n388
Positions open n31
U. S. examinations n235, n274

Cofferdams:
Deep foundations for Lake Champlain bridge built with open cofferdams e795, *796
Coleman, J. F. nominated president of A.S.C.E. n591

COLORADO RIVER

Boulder dam project:
Allocation of power n670
Applications for power requested . . . n474
Height of 725 ft. being considered . . . n510
Many applications filed for power . . . 772
Preliminaries n76
Progress n236
Prospective purchasers of power meet n348
States discuss power permits and cost of electricity n434
States threaten tie-up of project n867
Further development n313

COLUMNS

Badly crushed columns in Detroit building W. O. Hinkley l*543
Concrete casing of steel bridge tower columns add to strength 372
Cast-iron used in columns of 16-story concrete bldg *129
Procedure in pouring and code of A.C.I. S. Uhr ..... l 271
Steel column tests reating to bridge design, Bur. of Standards e239
Tests of large-size columns of three grades of structural steel, e992; R. S. Johnston *999
Tests on models of columns for Hudson River bridge 690

COMPRESSED AIR AND AIR TOOLS

Air compressor, vertical tandem type (Gardner-Denver Co.) n*870
Roller bearings used (Worthington Pump & Machinery Corp.) n*515
Tractor-mounted air compressor (Metal-Weld, Inc.) n*36
Two-stage compressor unit cooled by air (Ingersoll-Rand Co.) n*1028

CONCRETE

Curing:
Keeping pipe damp during process W. F. Shaw ..... l 430
Sprinklers vs. burlap in concrete pipe curing 220
Dry concrete used on two large dams e639, *640; correction W. R. Johnson l 824
More mortar and less rock for uniform-strength concrete. D. T. Boardman . . l 151
Ready mixed:
Tank body unit to preserve quality of concrete in transit (Portland Concrete Machines Co.) n*437
Reinforced concrete, use of to be increased n79
Sea water effect on:
Improved asphalt treatment for piles. G. F. Nicholson *95
Porcelain tubes incase reinforcing bars of bridge piers j*229
Steel columns strengthened by concrete incasement 372
Substitute for the compression test of concrete. G. J. Griesenauer 846
Water ratio theory:
Effect of aggregates on water ratio. G. M. Wiliams 71; F. R. McMillan. Is it the last word? N. C. Johnson . . . l 471

CONCRETE AGGREGATES

Metallic aggregate ("Betonac") hardens concrete (Amer. Betonac Corp.) n1027
Concrete mixer manufacturers, conference. French Lick Springs, Sept. 5 ..... n389

CONCRETE MIXERS

Accurate water control and easier operation in new paving mixers (Foote Co., Inc.) n*237
Federal Trade Commission rulings n906
Folding mast attached to paver (Ransome Concrete Machinery Co.) n*949
Heater used with tilting mixers (Littleford Bros.) n*870
Measuring tank holds water-cement ratio constant (Blaw-Knox Co.) n*673
Non-tilting, 14-S (T. L. Smith Co.) *120
Proportioning unit weighs water and aggregates (T. L. Smith Co.) n*437
7-s mixer with gasoline power (Ransome Concrete Machinery Co.) n*389
10-S mixer designed for accurate proportioning, Koehring Co.) n*711

CONCRETE PROPORTIONING AND MIXING

Powdered admixtures in concrete 816

CONCRETE UNITS

Precast concrete bridge railing design allows future shift *847
Roof slabs made with light aggregate (Federal Cement Tile Co.) *551
Spacing suspension points for precast concrete piles. E. G. Paulet *260
Tunnel repaired with precast concrete invert beams *138

CONCRETING

Concrete should not be poured. H. L. Cooper ..... l 628
Exceptionally dry concrete used on two large dams e639, *640
Formwork:
Collapsible form facilitates making of blocks to support reinforcing. W. S. Todd j*505
Corrugated sheathing used in adjustable forms (E. Blum Constr. Co.) n*869
Forms for concrete columns quickly erected (Dowd Concrete Form System, Inc.) n*712
Road form, auxiliary rail to eliminate tipping (Lakewood Eng. Co.) n*315
Road form, new, hot riveted details (Truscon Steel Co.) n*79
Under water:
Seal concrete placed with 100-ft. tremie, Florida bridges *959

CONCRETING PLANTS

Bulk cement pumped across river for highway job. M. Kind *879
Central mixing plant transported on trailers n*674

Conduits:
Hydraulic jump design for a 100 sec.-ft. conduit, Calif. J. W. Jourdan & O. Reed *224
Insect larvae reduce capacity. 137
(See also Pipe and pipe lines.)
Connet, F. N., honor to, in Builders Iron Foundry, Providence, R. I. n*828

CONSTRUCTION

Bond premium disallowed on partial payment on government work n191

Costs:
Effect of stock market debacle e713
What is cost? e561
Day labor records, Flint, Mich. 896
Equipment:
Equipment thinking lacking e480; C. R. Harte, l 628; F. Lavis ..... l 737
Facts on the outlook—results of a telegraphic survey by *Engineering News-Record* e833, 836
Haulage:
Steel delivered in carloads by barge to building site j230
Hoover calls for cooperation from industry e793, n864, e913, n944
Lag between financing and awarding analyzed *729
Materials:
Masonry materials, freezing and thawing test recommended 146
Scheduling materials purchases in building work. G. W. Maker *522
Noises lessened by silencer (Maxim Silencer Co.) n*438
Outlook encouraging e43
Photographs, titling. J. A. Leonard . . j*69
Public work expedited by new division in Dept. of Commerce n987
Safety measures:
National Safety Council, congress, Sept. 30-Oct. 4. ..... e317
Safety code compiled by Inst. of Architects n188
Tunnel and caisson code, National Safety Congress e479
Washington adopts new rules for razing n190
Statistics:
Business side of construction, including cost and volume index numbers n37; n80; n120; n158; n195; n238; n278; n316; n354; n391; n438; n478; n516; n553; n596; n636; n674; n712; n748; n792; n832; n870; n907; n950; n990; n1028

CONSTRUCTION PLANTS

Railroad tunnels through Cumberland Mts., plant dragged over hills by tractors *916
Road oil-heating plant for Los Angeles Co. e82; W. W. Shelby *100
(See also Concreting plants.)

CONTRACTING

Bids:
Breaking faith. New Haven e834, n866; L. R. Ash ..... l 942
Comparable bids. Bidding under cost e2, e3
Competitive bidding reform e123
Competitive bids for engineering services 615
Changes in government contracting n904
General contracts upheld e440
Manufacturers can help to stabilize contracting e398
Recording contract performance, A.G.C. . e241

CONTRACTORS

Fraudulent use of creosote substitute for ocean pier, Calif. *184
Indiana contractor guilty of presenting false claim n510
Licensing:
California law to be enforced Nov. 1 e639, n868
Limitation of price guarantees opposed n77
Playing square e159
Prequalification held illegal in Philadelphia n786
Prequalification rules, Baltimore bidders adopt n312
Reforms for contractors, A.G.C. report n830
(See also Associated General Contractors.)

CONTRACTS

Lag between financing and awarding contract analyzed *729

CONVEYORS

Belt:
Denny Hill, Seattle, leveled by conveyor system e517, *523
Trains of portable conveyors place concrete for large building . . e398, *420
Core drill standards adopted by U. S. Bur. of Standards n35
Core drills use chilled shot as cutting medium (Ingersoll-Rand Co.) n*552
Cost and volume index numbers. (See Construction, statistics.)
Council-manager plan (See Cities.)

CRANES

Diesel locomotive crane has 25-ton capacity (Industrial Brownhoist Corp.) n*950
Dragline crane, auxiliary tread gives side support (Page Eng'g Co.) n*354
Hinged jib on crane boom extension handy for steel erection. j*780
Interlocking safety hook for crane service (Public Works Equipment Co.) n*157
Truck crane on sidewalk bridge assists in building demolition j*307
Unique crane loads freight cars on ship. J. O. May *368
Crusher supplies broken stone for small jobs (Day Pulverizer Co.) n*711

CULVERTS

Concrete culvert moved by stump puller and rollers. J. Calhoun j*783
Cost of jacking culvert through fill compared with open-cut method. W. M. Angas j*863
Overlooking certain factors results in inaccuracies in designs. G. H. McMahon j*307
Curves, locating in the field without instruments. C. K. Clausen j*148
(See also Highway design.)

D

Dallas, Tex., new playgrounds and schools. 96

DAMS

Arapuni dam, N. Z. n*385
Arch:
Calderwood. (See Dams, Calderwood.)
Dalton multiple-arch dam, Calif., design and construction. E. C. Eaton *904

Florence Lake dam, tests.....*579
Lake Hodges dam safe except from earthquake e121, 132
Small arch dam design governed by economy need. J. Girand, Jr.....*569
Aswan dam, Egypt:
Bids for raising height.....n629
Height to be increased.....n510
Bridge River dam, B. C., rockfill timber construction; tests determine baffle weir design. C. E. Blee.....*931
Bull Run storage dam, for Portland, Ore. B. E. Torpen *204; H. L. Cooper 1628; W. G. Chace.....1*664
Calderwood dam, Tenn.:
Construction n*349
Designed with deep cushion pool to receive overflow e951, *954
Dry concrete used e639, *640; W. R. Johnson 1824
California dam inspection act upheld...n740
Chatsworth district, Los Angeles planning structure to replace St. Francis dam..n512
Cobble Mountain dam, Springfield, Mass., analysis of core material..... 140
Concrete:
Calderwood, Tenn., thin-section arch overfall dam e951, *954
Coolidge dam. (See Dams, Coolidge dam.)
Diablo dam, placing dry concrete e317, *320
Exceptionally dry concrete used on two large dams e639, *640; correction. W. R. Johnson 1824
Gravity dam, 200 ft. high, Bull Run River, Ore. B. E. Torpen.....*204
Owyhee dam, progress.....*248
Percolating water, effect of, on concrete dams e202; N. A. Bowers *212; J. A. Kitts, 1430; W. G. Chace 1*664
Preventing percolation through dams. J. A. Kitts 1430
Stony Gorge dam built over fault subject to settlement. J. L. Savage and H. J. Gault.....*46
(See also Dams, arch.)
Coolidge dam, Ariz., tests on concrete made. B. Johnston 456; Correction..1543
Dalton multiple-arch dam, Calif. E. C. Eaton *994
Diablo dam, Wash.:
Construction ingenuity e317, *320
Time extension requested by contractors n*900
Dual jurisdiction in Calif.....e161
Earth:
Hydraulic dam cores, treatment of, Hawaii e517; F. E. Hance..... 543
Long period settlement records of two earth dams e755; J. A. Holmes....*769
Mitchell, S. D., dam with spillway channel through embankment.....*725
New Canaan, earth dam with masonry core wall raised without interruption of service. O. H. Marchant.....*179
Saluda dam, 7,000,000 cu.yd. fill placed n474
Saluda hydraulic-fill dam, test of outlet-works n*629
Table Rock Cove dam, reconstruction e914; S. T. Henry.....*934
Wyoming, North Crow Creek, large earth dam planned.....n739
Failures:
San Gabriel dam. (See Dams, San Gabriel.)
Virgin River, Nev., dam washed out during construction 526
Florence Lake concrete arch dam, tests show color affects surface.....*579
Guadalupe River, Tex., automatic roof weirs used for reservoir control. E. L. Chandler *685
India, Lloyd dam, largest in the world. R. Ryves *362
Kenogami, Que., and Calderwood, Tenn., exceptionally dry concrete used e639, *640; W. R. Johnson.....1824
Lac Seul storage dam completed.....n75
Lake Hodges dam, Calif., declared safe except from earthquake.....e121, 132
Lerma River, Mex., large irrigation dam completed n545
Marathon dam, Greece, completed.....n*740
Metal dam, Minden, Germany.....n191
Method of concrete placement important factor in checking percolation. W. G. Chace 1*664
Ohio, Dam No. 53, opening.....n310
Owyhee dam, Ore:
Construction progress *248
Diversion tunnel in operation.....n*547
Tower on cableway destroyed by fire..n152
Pardee dam, Calif., dedication.....n*705
Quebec, Mattawin River, 2,400-ft. dam project n708
Rockfill:
Salt Springs dam on Mokelumne River.n*75
Crawler trailer used. H. Keesling..*616
Virgin River, Nev., washed out during construction 526
Safford, Ariz., small arch dam design governed by economy. J. Girand, Jr.....*569
St. Francis dam, standing section razed with dynamite *51
Saluda dam, S. C.:
Intakes given severe test by heavy flood discharge n*629
7,000,000 cu.yd. fill placed.....n474
San Gabriel dam, Calif.:
Bids asked for cement.....n153
Received n509
Board investigating safety of dam site.n825
Contract cancelled n944
East abutment is leveled..... 126
Earth slip at west abutment.....n509
Serious defects in foundation rock stop work e675, *699
Site declared unsafe.....n867
State commission named to report on.n742
State denies permission to build dam as proposed.....e872, 895
Somerset dam and Davis Bridge dam, long period settlement records, e755; J. A. Holmes.....*769
State control act signed by Calif. governor n31
Stony Gorge dam, Calif., Ambursen type built over fault. J. L. Savage and H. J. Gault *46
Table Rock Cove dam, S. C., reconstruction after washout and slump, e914; S. T. Henry *934
Table Rock dam, Mo., planned.....n153
Tests on concrete made at Coolidge dam. B. Johnston 456; correction.....1543
Day labor. (See Construction, day labor.)
Derrick-boat loads large gasoline shovels without dismantling n*903
Diesel Engine Manufacturers Association organized n157
Ditchers and ditching. (See Excavating machinery.)
Ditches:
Blasting methods, new j*1019
(See also Drainage.)
Dividers, locknut keeps them open. M. Schwam j*309
Docks. (See Wharves and docks.)
Drag scraper controlled by hydraulic cylinder (Amer. Tractor Equip. Co.).....n*791

DRAINAGE

Airports. (See Aeronautics.)
Ditches:
Reconstructing a drainage-ditch system, Arkansas e81; H. W. English and A. S. Fry.....*97
New Orleans, additional contracts.....n388
(See also Culverts; Floods; Land reclamation; Pipe; Pumps.)
Drawing and drawings:
Blueprinting machine, improvements (C. F. Pease Co.) n*515
Record of changes on drawings. M. Schwam j*586

DRILLS AND DRILLING

Core drill standards adopted by U. S. Bureau n35
Core drills use chilled shot as cutting medium (Ingersoll-Rand Co.).....n*552
Jackhammer drill on special carriage removes bumps from concrete road (Ingersoll-Rand Co.) n*870
New drill steel sharpener (Gardner-Denver Co.) n*478
Portable outfit for foundation testing (Star Drilling Machine Co.).....n*35
Drydocks:
Brooklyn, heavy gate jumps ways in launching mishap *209
Erie Basin, Brooklyn, opened.....n944
Dynamite. (See Blasting; Explosions.)

E

Earth pressures. (See Foundations.)

EARTHQUAKES

Coastal dangers e872
Minor earth tremors in northeastern states n272
North Atlantic coast shaken, Nov. 18..n864
Parral, Chile, quake leaves arch of cathedral unsupported. J. B. Girand.1*588
Shaking table for tests..... 335
Water-works design provides for earthquakes, San Jose..... 897
(See also Building design.)

EARTHWORK

Denny Hill, Seattle, belt conveyors used e517, *523
Large-volume earth-handling equipment in Germany. Th. Krauth.
I—Excavating equipment and methods e82, *84
II—Hauling and placing equipment and methods e122, *142
Water-tamping of fills in Texas expedites highway work. A. J. Wise.....*1016
(See also Excavating machinery; Highway construction; Levees.)
Electric lamp anniversary.....e597
Electric power:
Berlin, second plant planned..... 128
San Francisco, price fixed for electric systems n73
Tacoma, Wash., U. S. S. "Lexington" to supply power n1022
(See also Hydro-electric power.)
Electric power transformers, special shipping arrangements required.....n*312
Electric power transmission:
Portable lighting generator for testing..*570
Steel poles used because of termite attacks 378
Utah, two systems' interconnecting lines. 311
Electric railways:
I.C.C. has no jurisdiction.....n273
Los Angeles loses fare suit.....n946
Strikes analyzed 254

ENGINEERING

An American engineer looks at Russia. L. White *652
Beauty as an ideal, e518; A. J. Lichtenburg 1783; F. H. Frankland.....1783
Bids for services..... 615
County engineering, development.....e559
Engineering education:
S.P.E.E. convention speakers discuss engineering problems 14
Engineering ethics:
The volunteer advisor.....e480
Engineering law:
Some recent points decided, reviewed by H. Braasch 263, 618
Engineering research:
Fostering independent research..... e44
Laboratory, moderate-cost, North Carolina State College. H. Tucker.....*608
(See also Highway research; Hydraulic research; etc.)

ENGINEERS

Architects and engineers e519; A. V. Sheridan 1666; D. M. Oftarsh.....1703
Bakery engineers, "Engineer".....1544
Courtesy an asset to the engineer. W. AtLee 1151
Developing the beginner..... 63
Discourtesy to applicants for positions, "Engineer" 1508; "Another Engineer" 1739
Engineers in public life..... 10
Human adjustment n281
Iowa state aids graduates.....n233
Irresponsible statements e755; A. W. Berresford 1942
Licensing:
California passes law.....n31, n709
San Francisco A.S.M.E. disapproves registration 880
State Boards of Engineering Examiners, convention, Aug. 26-28.....n434
Missouri raises salaries of highway engineers n547
A neglected tool—the English language.e509
New York City, no change in lockout of June 18th n115
Engineers sue for reinstatement.....n589
Rubio, P. O., engineer, president of Mexico n902
Shortcomings of engineers. E. Totti.... 171
Status of engineers to be studied by A.E.C. n351
Troublesome problems; report of A.S.C.E. e279
Engineers Corps:
Creates railway section.....n349
Realignment n*789
Recent transfers n273
Reorganization and the new chief n472, e479, n513
Work detailed in report for 1929.n985, n986

ENGINES

Engine built in 1818, Haiti, G. A. Duncan, Jr. *291
For crane and shovel service, engine using low-grade fuel (Northwest Eng. Co.) n*747
Large internal-combustion engine uses gas as fuel (Chicago Pneumatic Tool Co.) n*354
Equipment. (See Construction, equipment; Excavating machinery; Highway equipment, etc.)
Erosion. (Eee Soil erosion.)

EXCAVATING MACHINERY

Crawler tread improved (Thew Shovel Co.) n*906
Ditcher, light, uses offset boom (Barber-Greene Co.) n831
Dragline excavators used in reconstructing a drainage-ditch system e81; H. W. English and A. S. Fry..... *97
Excavator made in ¾-yd. size (Byers Machine Co.) n*516
Gasoline excavator made in ¾ cu.yd. size (Thew Shovel Co.).....n*711
Grading highway roadbed, power shovel production e834; A. P. Anderson.... 860
Hauling and placing equipment for excavating material in Germany e122; Th. Krauth *142
Large-volume earth-handling equipment in Germany e82; Th. Krauth..... *84
Side-wheel trencher works at close quarters (Harnischfeger Corp.).....n*237
Explosions:
Boston water tunnel, dynamite explosion n787
Sewer gas wrecks buildings, Newburgh, N. Y. n473; K. Allen.....1666

F

Federal expenditures, increase forecast.... 660
Federal Trade Commission aids construction industry n79
Fence posts, concrete, wood strip nailed to, permits easy wire renewals. C. H. Martyn j*150
Ferries:
Car ferries for shipping railway cars...e580
Milwaukee, municipal car-ferry terminal for harbor n115, e280, *301; L. R. Kent 1588; "Car-ferries".....1666
Files and filing:
Compiling and preserving city engineering data. R. V. Newcomb.....j780
Standard binder devised for filing miscellaneous data. R. Canavan.....j*663

FIRE PREVENTION AND PROTECTION

Hydrant, flush type, for Cincinnati..... 727
Unnecessary losses in Calif. due to unstandardized fire connections.....e160
(See also National Fire Waste Council.)
Fires:
"Carnegie," non-magnetic yacht destroyed by fire n900
Owyhee dam, tower on cableway destroyed n152

*Illustrated: a, abstracts; e, editorials; j, job and office; l, letter; n, news

Floodgate, Bremerhaven, Germany 208
Floodlighting a dome from the interior, bank building, Bklyn j*148

FLOODS AND FLOOD PROTECTION
Dallas, Tex., flood-protection project will reclaim 10,000 acres. A. S. Fry *804
Detroit flood hazards from periodical lake rises. L. E. Ayres *458
Florida appoints flood control and drainage boards n311, n434
Mississippi River. (See Mississippi River.)
New Mexico, Rio Grande flood n*310
Worst flood in its history n632
New Orleans streets under water after heavy rain n*432
Savannah River floods part of Augusta, Ga. R. S. Howard n630
South Carolina estimates damage to highways n865
Southeastern states suffer from heavy rains n*589, e597
Vermont expenditures increased by flood. 522
(See also Rainfall and runoff; Rivers.)
Floors:
Lightweight floor constructed of steel and concrete (Rivet-Grip Steel Co.) ..n*1028
New steel floor developed for building e317; L. H. Miller *326
Wood nailing strip forms part of steel floor joist (Truscon Steel Co.) n*390
Flumes:
Standing wave flumes, advantages of. C. C. Inglis ..... l 112, l 701
Standing-wave or hydraulic-jump flumes. C. Herschel ..... l 431
Forests and forestry:
Forests as flood reducers n76
Reforestation in Europe. "A Lumberman" l 627; H. W. Durham ..... l 942
Forms. (See Concreting, formwork.)

FOUNDATIONS
Heavy foundations built under an occupied basement, Brooklyn, N. Y. e439; W. T. McIntosh *452
Olympia, Wash., Capitol, heavily reinforced-concrete mat used. D. C. Coyle *90
Soil mechanics:
Chemical treatment of hydraulic dam cores e517; F. E. Hance 542
Investigating rock foundations...e872, 895
Retaining wall tests 66
Road foundation studies. A.R.B.A. n234
San Gabriel dam, serious defects in foundation rock stop work...e675, *699
Underpinning:
Difficult underpinning of 17-story bldg. founded on pneumatic caissons e201; G. W. Glick *214
Freight, railway. (See Railway operation; Railway terminals.)
Furuichi, *Baron* Koi, made honorary member of A.S.C.E. n787

G

Garages:
Ashville, N. C., steel bar joist construction *289
Zoning reform needed e637; G. H. Herrold ..... l 824

GARBAGE AND REFUSE DISPOSAL
British and American conditions, general observations. M. N. Baker 347
Incineration:
Glasgow's 720-ton refuse incinerator. M. N. Baker *345
Paris, giant incinerator converts refuse into electric power and brick. M. Bricard (trans. by R. L. Willard) *974
Refuse incinerator specifications. G. A. Johnson ..... l 587
San Francisco to build new incinerator n233
Construction delayed n312
Dispute to be referred to voters....n511
Tentative requirements e357, a383, e559; G. A. Johnson ..... l 587
Votes both for and against..e756, n786
Manchester, England, refuse salvage plant 1010
Motor equipment collects rubbish, Cincinnati 89
Refuse-disposal pitfalls e357
Seattle, garbage disposal by sanitary fill. 227
Virginia, garbage collection a "governmental function" 58
Garber, D. A., death e914, n*946

GAS
Gas from cornstalks for farm use 491
Natural gas fuel, conservation required in California e638
Gas mains:
Accidents in Europe due to cold. C. H. Pollogg 496
Breaks in German mains due to cold..1007
Calif., transmission line started n513
Marketing natural gas e951
250-mi. line, welding and laying, Calif. e44, *54
Natural gas lines in California n474
Gasoline production, new method result of international research 126
Gasoline tax. (See Highway economics.)
Generator, portable lightning, for testing transmission lines *570
Girders:
Steel:
Unusual methods used in repair of roof girders in street underpass e638; H. T. Welty *642
Gordon, C., managing director of Electric Ry. Ass'n n*153

GRADE CROSSINGS
California, accidents increase 179
New York State, 500 eliminations proposed n742
Safeguarding. J. D. Rauch ..... l 271
South Bend, Ind., Grand Trunk relocates its line *538
The state's larger share in grade crossing improvement. R. B. Kittredge 364, e398; H. J. Kirk ..... l 544
390 crossings eliminated from federal highways 172
Graders:
Elevating grader driven by tractor power (Caterpillar Tractor Co.) n*389
Elevating grader redesigned to lengthen belt life (J. D. Adams Co.) n*515
Grain elevators:
Canada, contract awarded for elevator at Prescott, Ont. n786
Churchill, Canada, new grain elevator planned n547
Gravel-washer equipped with roller bearings (Smith Eng. Works) n*194
Great Lakes:
Chicago building protected by concrete wall with wave-deflecting parapet....*920
Chicago diversion of water. (See Chicago diversion of water.)
Lake levels and damage to shore property at Chicago e757, *767
Protecting harbors by breakwaters..... n904
Steps to prevent pollution 800
Grinder, rotary, driven by air motor (Chicago Pneumatic Tool Co.) n*869
Grouting:
Sealing foundation site of Diablo dam e317, *325
Gypsum products not lumber, Trade Commission rules n711

H

Hammer, chipping, flapper valve used (Ingersoll-Rand Co.) n*990
Harbors. (See Ports and harbors.)
Helium:
Train wreck test for steel sphere to carry helium *501
Henderlite, H. B., state highway engineer of Louisiana n510
Hetch Hetchy project. (See Water supply, San Francisco.)

HIGHWAY ACCIDENTS
Automobiles responsible for more deaths than five diseases e991, 1018
California grade crossing accidents increase 179
Highway associations. (See American Ass'n of State Highway Officials; American Road Builders Ass'n; Illinois Ass'n of State Highway and Municipal Contractors; International Ass'n of Street Sanitation Officials; Pan-American Congress of Highways.)

HIGHWAY CONSTRUCTION
Concrete:
Forms, auxiliary rail to prevent tipping (Lakewood Eng. Co.) n*315
Forms, new, hot riveted details (Truscon Steel Co.) n*79
Joints. (See Highway design, joints.)
Old surface of tar-bound macadam loosened without removing j664
Detours. (See Highways, detours.)
Grading roadbed, power-shovel production e834; A. P. Anderson 860
Gravel roads:
North Carolina, graveling roads at low cost *132
Water-tamping of fills expedites work. A. J. Wise *1016

HIGHWAY DESIGN
Curves, California to improve sharp ones 802
Joints:
Dummy joints prevent cracks in concrete pavements. H. F. Faulkner..*607
Joint for concrete roads uses air as cushion (Truscon Steel Co.) n*353
Why joints in concrete pavements? C. Older 530
Shoulders:
Grassed shoulders resist erosion e599; J. D. Waldrop ..... l 627
Subgrades and pavement bases; studies by A.R.B.A. n234

HIGHWAY ECONOMICS
Bonds:
Kentucky commission to offer bridge bonds again n153
Many states issue bonds 419
South Carolina bond issue approved.n631
Federal aid:
More aid recommended n1026
Gasoline tax:
Diversion to non-highway purposes... e1
Indian funds not to be used for highways through reservations n740
Low-cost road problems e715, 777
Road money e317
South Carolina bond issue taken to Supreme Court n984
Texas, no increase in funds 657
Highway engineering:
County engineering e319
Highway equipment. (See names of equipment, as: Concrete mixers; Graders; Scrapers; etc.)
Highway maintenance:
Bermuda, maintenance easy 146

HIGHWAY MARKING
Road labels to aid aviators 609
Rock asphalt strip in concrete road makes perfect center line. J. Pope ..j*661

HIGHWAY RESEARCH
Gravel:
Corrugation, studies by Highway Research Board e953, *961
National Research Council, highway research board, annual meeting, Wash., D. C., Dec. 12-13 ..... n829
New knowledge of roads e953, *961
Test roads:
Concrete pavement tests by Bur. of Public Roads n233

HIGHWAY TRAFFIC
Accidents. (See Highway accidents.)
Electro-Matic vehicle-actuated traffic dispatching system (Automatic Signal Corp.) n*673
Maryland reports change in traffic distribution e953, *961
National policy on highway widening sought n669
Survey to be made in western states....n434
Traffic committee appointed by Sec'y of Commerce organizes work n509, e597, n632
Uniform regulation, Lamont committee reports on n1024
(See also Bridge traffic; Street traffic.)

HIGHWAYS
Accidents. (See Highway accidents.)
Alaska, international highway planned. e279; K. K. Hoyt *286
Baltimore, bridge division authorized in highways bureau n272
California to improve sharp curves 802
Canada, progress in highway construction 534
Chicago, citizens' advisory committees. 612
Chicago plans new roads within 30 mi. of city n32
Chicago region, many projects pending n385
China roads not for public use 534
China's progress, J. E. P. Tai ..... l 430
Detours:
Road construction without detouring, Pennsylvania e872; W. A. Van Duzer *884
Detroit, motor speedway over railway tracks n479
Fence posts, nailing wood strip on concrete permits easy wire renewals. C. H. Martyn j*150
Hungarian government rejects bids.... 958
Kansas, highway progress e915
Kentucky, impeachment urged for commission and engineers n546
Lincoln Highway, Pennsylvania, construction without detouring, e872; W. A. Van Duzer *884
Louisiana:
Engineering in Caddo parish....e319, *328
M. Cunningham dismissed from Dept. n188
Mexico, developing a nation-wide road system, e279; V. Saucedo *282
Mileages:
Concrete pavement yardage, June-Dec. 1929 n119, n315, n477, n635, n791 ..... n989
States improved 29,252 mi. in 1928 n348
New York City, elevated highway n*865
Nicaragua to co-operate in inter-American highways n349
North Carolina:
Graveling roads at low cost *132
Mecklenburg County, roadwork *576
Oklahoma, engineering force reorganized n474
Panama to hold conference in Oct. n433
Pan-American Congress, Aug. 1929, U. S. preparing exhibit n193
Pennsylvania job, bulk cement pumped across river, M. Kind *879
Quebec, government to build 200-mi. road n384
Road oil-heating plant for Los Angeles Co. e82; W. W. Shelby *100
Russia, American firm gets big contract n74
Santa Cruz, Calif., relocation, D. M. McPhetres *815
Single or dual pavement strips for superhighways? e756
South Carolina and Georgia to rush road building n902
Spain through the eyes of an American engineer, L. White *57
Tennessee dept. reorganized n273
Texas, work expedited by water-tamping of fills, A. J. Wise *1016
Trans-Canada, final stretch cleared ..n1023
Turkey, road work compulsory 457
U. S.-Mexico highways to be selected at conference n152
Vera Cruz awards road-building contract 1018
Washington-Mt. Vernon, memorial highway to connect n384
Bids requested for grading work....n1023
Widening roads, national policy sought n669
(See also Pavements and paving.)
Hodges, *Major-Gen.* H. F., death n510
Hoists and hoisting:
Automatic brakes safeguard highspeed hoist (Lidgerwood Mfg. Co.) n*989
Chain hoist, thrust bearing used (Robbins & Myers, Inc.) n*831
Housing and City Planning, International Congress on, Rome, Sept., 1929:
Delegates appointed by U. S. n232
Hurricanes. (See Storms.)
Hydrants, fire. (See Fire prevention and protection.)
Hydraulic gates:
Crest gates used as power plants in Texas. E. L. Chandler *685

*Illustrated: a, abstracts; e, editorials; j, job and office; l, letter; n, news

Hydraulic jump:
Design for a 100 sec.-ft. conduit, Calif. J. W. Jourdan & O. Reed.....*224
Tests on model dam determine baffle weir design. C. E. Blee *931
Hydraulic research:
Memphis, Tenn., laboratory, Army Engineers to build 998

HYDRAULICS

Backwater curves, utilized in Mississippi floodway work. W. W. De Berard...*492
Benefits of proposed river cutoffs determined by laboratory model e871. *886
Bonnet Carré spillway, hydraulic experiments at. W. B. Gregory *817
Computations, Boeuf floodway, Mississippi River e356, *379
Electrical device for determining surface elevations of water. H. A. Dibbell.. j*584
Flow measurements:
Measurement of stream velocity by use of air bubbles 921
Streamflow measured by simple method. G. Goodwin j*661
Formulas incorrect for partly filled pipes. C. W. Sherman *253

HYDRO-ELECTRIC POWER

Applications & permits:
Cumberland Falls project before Federal Commission n232
Denver gets permit for project at South Platte River n189
Grays Harbor, Wash., permit for North River water rights issued n386
Lewis River, Ore. and Columbia River near Wenatchee, Wash., licenses granted n704
Nisqually River, Wash., permit to Pacific Development Co.....n189
Northwest, developments planned....n312
Quebec issues permit for St. Lawrence diversion channel n513
Roanoke Rapids, N. C., license sought by Va.-Carolina Power Co.....n311
Safe Harbor, Pa., contract awarded...n703
Seattle company seeks permit for Skykomish River, Wash n546
Susquehanna River at Holtwood, Pa., license sought n671
Table Rock project, Mo. n153
British Columbia:
Development on Powell and Lois Rivers n825
Powell River Co. to expand n706
British Columbia Power Corporation, six-year program n707
California, report 187
Centralia, Wash.:
Project on Nisqually River assured...n903
Taxpayer gets injunction against power.n866
Vote on municipal project.....n474, n631
Federal control, changes in the commission recommended e913
Interstate power, controlling rates charged e913
Lake Kootenay project, investigation ordered n827
Little Tennessee River, Aluminum Co. develops two more projects n*349
McKenzie River Basin, Ore., water power resources 249
Maine rejects bill to export surplus water power n432, e439
New York state, power companies consolidate n473
Niagara company overcharged for water n545
North River, Wash., project started....n153
Oconee River, Ga., new development planned n545
Quebec, Lievre Raiver at Cedar Rapids, large development planned n740
Tacoma and Seattle request Navy vessel to help avert shortage....n865, n1022
Tacoma, Wash., city's generating facilities n1022
Tacoma, Wash., to acquire additional power and water rights n741
Upper Hudson River district, N. Y., expansion n742

HYDRO-ELECTRIC POWER PLANTS

Beauharnois power canal, work started n704
Guadalupe River, Texas, automatic roof weirs used for reservoir control. E. L. Chandler *685
Japan, largest plant of the Orient, in Chosen (Korea) e675; T. Matsumura..*678
Joseph, Ore., new plant of Pac. Power & Light Co. n115
New Zealand project uncovers prehistoric forest n*385
Ottawa River at Chats Falls, new development n671
Powell River Co., project begun.....n985
Saguenay River, second development at Chute-a-Caron begun *889
Scotland, Lochaber high-head plant nearing completion, *11; correction 213
Transmission lines. (See Electric power transmission.)
Waterville, N. C., lining keeps up with driving on water tunnel e159, *173
(See also Dams; Penstocks; Reservoirs.)

I

Illinois Association of Sanitary Districts, 6th annual meeting, July 9-10 .....n116
Illinois Association of State Highway and Municipal Contractors:
Convention (annual), Chicago, Dec. 11-13 .....n986
Imhoff tanks. (See Sewage treatment.)
Industrial wastes:
Checking phenol pollution in Lake Michigan 288
Chicago River pollution to be checked n153
Illinois water board controls waste discharge n473
(See also Water pollution.)
Industry:
New England, findings of an industrial reconnaissance. E. Whitehorne 863, e873
New York State industries to be studied 969
(See also Business.)
Insulation, three dead air spaces provided by new bldg. insulation (Triple Insulaire Co.) n*277
Insulite Co. and U. S. Gypsum Co. merge n515
International Acetylene Association:
Meeting (annual), Chicago, structural welding discussed n827
International Association of Street Sanitation Officials:
Conference (10th), Jacksonville, Fla., Oct. 14-16 .....n546, n671
International City Managers Association, convention, Fort Worth, Nov. 20-23:
Research projects n902
Iron, alloys of, research by Engineering Foundation 66
Irrigation. (See Land reclamation.)

J

Jacks:
Power-operated, for railway work (Nordberg Mfg. Co.) n*157
Jetties for stream control (Kellner Jetties Corp.) n*832
Joints. (See Highway design; Pavements and paving; Pipe and pipe lines.)
Joists:
Steel bar joist construction in a garage and a hotel *289

K

Kutz, *Col.* C. W., seeks retirement.....n671

L

LABOR

Hetch Hetchy project bars all but San Franciscans n434, e439
Progress and overtime balanced to speed building schedule. e239; J. G. Ahlers *250
Responsibility of the union e239
Strikes on street railways analyzed 254
Time for housecleaning e871
(See also Construction, day labor.)
Laboratories. (See Engineering research.)

LAND

Proposal to turn unreserved public lands to state control 137
Many economic problems involved in proposed change in public land policy. K. K. Hoyt *427
President favors transfer.....n350
Proposes to appoint commission. e355, n384
Public land commission named by President n667, n1018

LAND RECLAMATION

Arkansas, reconstructing a drainage ditch system e81; H. W. English & A. S. Fry *97
Chilean nitrate desert, irrigation plans 448
Chinook irrigation district, Wash., government threatens shut-off n154
Dallas, Tex., reclaims 10,000 acres in heart of city. A. S. Fry *804
Economic survey planned 407
Federal projects, economic survey e1
Germany, coast of Schleswig, new project planned 183
India, active development of irrigation.. 107
Reclamation or free storage e714; J. S. James l899
Rio Grande conservancy district, court approves bond issue n512
Rio Grande irrigation project delayed... 29
Soviet government adopts American irrigation methods n546
Texas, irrigation canal for Rio Grande valley n351
U. S. Bureau, accomplishments to June 30, 1929 779
Yakima project:
Building high-head siphons *763
Lining canals with concrete *722
(See also Canals; Dams; Drainage; Hydro-electric power; Reservoirs; Water compacts; Water rights; Water supply.)
Landslides, San Pedro, Calif., residences threatened n75
Leipzig Fair opens Aug. 25 ..... n79
Length limits for shipping pieces longer than one car, calculating. H. K. Stephenson j*506
Lettering, better, necessary for technical publications e439

LEVEES

Boeuf floodway, Mississippi River e356, *379
Dallas, Texas, flood-protection works. A. S. Fry *804
Mississippi, bids on two major projects opened n152
Mississippi contracts, Upper Yazoo and White River districts, authorized....n232
(See also Floods; Mississippi River.)
Light Railways Association meets at Warsaw, Poland, June 29 to July 6, 1930...n547
Lighthouse conference, 1st. international, London, July, 1929 .....n312
Lighting:
Seattle to erect building for light department n1023
Self-contained unit lights isolated jobs (Fairbanks, Morse & Co.) n*1027
Locks:
Canal. (See Canals.)

LOCOMOTIVES

Diesel-electric locomotives, new type ordered by Lackawanna R.R. n831
India, new tank locomotives for 4 per cent grades 88
Oil-electric locomotives for service at New York n388
Repair shops. (See Railway terminals, engine.)
Yard locomotives dispatched by radio.. 768
Lynch, T. D., elected president of A.S.T.M. n*32

M

Manufacturing conditions in New England, E. Whitehorne 862

MAPS AND MAPPING

Aerial:
Alaska survey discloses power site.... 419
Ohio River, aerial and ground surveys to be made n434
Airway maps available 800
Compiling and preserving engineering data on a series of loose-leaf maps. R. V. Newcomb j*780
Geological Survey extends map of the country 878
Hoover to push mapping program of the U. S. n633
Masonry materials, freezing and thawing test recommended 146
Materials:
A.S.T.M. researches. (See American Society for Testing Materials.)
(See also Construction, materials.)
Metals:
Fatigue failure to be studied by Bur. of Standards 365
Konel, new metal, retains strength at high temperatures (Westinghouse Co.)n315
Miller, F. J., chairman of Oregon R.R. Commission n232
Miller, Oskar von, German engineer, honored by museum directors n947

MISSISSIPPI RIVER

Deeper channel needed. W. A. Warren.l471
Floods and Flood control:
Another Goethals? e240
Atchafalaya floodway e481; W. W. De Berard *492
Boeuf-Atchafalaya basin, President considers revision of plan e441
Boeuf floodway, legal doubts 382
Boeuf floodway — levees — hydraulic computations e356, *379
Boeuf floodway, property owners must be compensated e951, n983
Boeuf floodway suit to go to trial n272, n668
Bonnet Carré spillway:
Criticisms — engineers question adopted location and weir design e794; W. B. Gregory *817; A. B. B. Harris *818
Planning a huge diversion weir e240; W. W. DeBerard.....*242
Caernarvon levee break, losses, no recovery for n986
Cairo flood problem. C. E. Hillman..l 702
Decentralized control ...n472, e479, n513
Engineer district organization for flood protection. W. W. De Berard *571
Flood Control Ass'n asks President to halt work on spillways n116
Flood control changes e913
Forests as flood reducers n76
Landowners lose point in suit n75
Government must deposit money to pay damages n474
Monroe Circle levee project, judge rules for landowners n631
New Madrid, Mo., landowners ask higher compensation n33
New recommendations submitted to Hoover n235
Plan not subject to change by President e160, 186
President willing to hold up doubtful work n432
Six Presidential approval orders on flood control 332
Stabilization methods used on the Indus recommended. P. Claxton *619; L. R. Smith l899
Modjeski, R., received John Fritz medal...n546
Mosquitos, habits of. W. A. Wilson.....l431

MOTOR VEHICLES

Automobiles:
Dilapidated cars on Connecticut roads, laws against e355
Machine for parking developed (Westinghouse Elec. Mfg. Co.) n*793
Buses:
Interstate bus lines, regulation n745
Trucks:
Capacity increased (General Motors Truck Co.) n*831
Cement boxes for attachment to trucks (G. O. Harm Co.) n*949

*Illustrated: a, abstracts; e, editorials; j, job and office; l, let*er; n, news

Concrete delivery trucks (Portland Concrete Machines Co.) n*437
Heavy duty, new line (Inter. Harvester Co.) n*79
Heavy duty truck drives through front and rear wheels (Four Wheel Drive Auto Co.) n*477
High road speeds for new trucks (Mack Trucks, Inc.) n*636
Roll-back principle used in all-steel truck body (Galion Allsteel Body Co.) n*193
3-ton roadbuilders' truck (Indiana Truck Corp.) n*277
Unusual rear axles used in 3-ton truck (Relay Motors Corp.) n*950

MOTORS
Air motor drives rotary grinder (Chicago Pneumatic Tool Co.) n*869
Four cylinder gasoline motors (Hercules Motor Corp.) n831
Industrial motors equipped with variable-speed transmission (Fuller & Johnson Mfg. Co.) n*711
Municipal government. (See cities.)

N

National Fire Waste Council, meeting, Washington, Oct. 1 .....n511
National Paving Brick Manufacturers Association, convention, Chicago, Dec. 4-6: Paving practices discussed *939
National Safety Congress, meeting, Chicago, Sept. 30-Oct. 4 .....n273
National Safety Council:
Public safety division stresses traffic control in municipalities n591
New Caledonia, harbor works and hydro-electric plant planned 967
New England, findings of an industrial reconnaissance E. Whitehorne..863, e873
New England Water Works Association:
Convention (annual), 48th, Portland, Me., Sept. 17-20.....n274, 502, n511
Electing officers n311
New York City:
Elevated highway under construction..n*865
Engineers' lockout.....n115, n589
Multiple-dwelling law, e519; A. V. Sheridan 1666; D. M. Oltarsh.....l 702
Sanitation commission, proposed, city to vote on n388
West Side improvement plan; N. Y. Central R.R. to relocate tracks....n986, e993
New York State:
Building program, public, large..... 462
Economic and industrial conditions to be studied 969
Niagara Falls, ratification of treaty for remedial works delayed, e43; R. I. Randolph .....l 231
Noise:
Combating traffic vibration and noise. S. E. Slocum 688
New York City appoints commission to study 729
North Carolina annual water works and sewage meeting, Nov. 4-6.....n827
North Dakota water and sewerage engineers organize, Oct. 16-17 .....n704

O

Ohio, water and sewage conferences.....n788
Oil:
Road oil-heating plant, e82; W. W. Shelby *100
Oil field engineering:
California requires conservation of natural gas e638
Long pipe line uses welded joints..... 927
Reservoir lining, providing oiltight contraction joint j*1019
Tanks:
New spheroidal design for large tanks. C. L. Day *416

P

Paints and painting:
Painting in damp weather 178
Resistant paint made in colors (General Electric Co.) n516
Pan-American Congress of Engineers, Mexico City, Aug. 26-28:
American Assn. of Engineers abandons meeting n312, n433
Pan American Congress of Highways:
Summary of work n386
U. S. preparing exhibit n193
Panama to hold road conference in Oct..n433

PATENTS
Dock patent (W. S. Ferguson), New York sued for infringement n190
Hayde and Olsen patents for light-weight concrete aggregate do not apply to same process n635
Pioneer bore method, A. C. Dennis files suit to establish validity.....n190
Seattle bascule bridges, city develops non-infringing design *968
Syracuse forbidden to operate chlorinator; suit by Wallace & Tiernan Co...n515
Wallace & Tiernan Co. gets injunction in chlorinator dispute n353

PAVEMENTS
Chicago, repaving methods in dispute...n154
Chicago streets to be improved by county board n30
Concrete:
Dummy joints prevent cracks in Seattle, H. F. Faulkner *607
Joint uses air as cushion (Truscon Steel Co. n*353
Tests by Bureau of Public Roads....n233
Why joints in concrete pavements? C. Older 530
Yardage, June-Dec., 1929.....n119, n315, n477, n635, n791, n989
Durax for steep grades, Tokyo, Japan. Y. Emori *18
Schools in street paving in 25 cities....n743
Single or dual strips for superhighways?.e757
Steel armoring for pavements subject to heavy wear (Blaw-Knox Co.).....n*515
Pavements. (See also Highways.)
Paving mixers. (See Concrete mixers.)
Penstocks:
Big Creek 2-A penstock, providing for a 2,418-ft. head, H. L. Doolittle....*482
Concrete plug drilled and blasted under 180-ft. head of water.....j*781
Pihlfeldt, T. G., celebrates 40 yrs. of Chicago city service n435

PILES AND PILING
Bridge piles driven 50 ft. under water, Florida bridges *959
Improved asphalt treatment for concrete piles in sea water. G. F. Nicholson *95
Long piles shipped across country.....n*787
Marine divers "service" piling, Seattle.. 623
Spacing suspension points for precast concrete piles. E. G. Paulet *260

PIPE AND PIPE LINES
British water-pipe practice and experience, M. N. Baker *405; J. R. Davidson .....l 1021
Calif. gas transmission line started....n513
Cast-iron:
Jointing material made in solid form (Atlas Mineral Products Co.) n477
16-in. main, cleaning 7 miles, New York state, A. T. Clark.....*411
Cast iron, steel or reinforced concrete: water supply lines in Hartford, C. M. Saville *400
Concrete:
Curing, keeping pipe damp during process, W. F. Shaw .....l 430
Curing, sprinklers vs. burlap 220
Sewer under 83-ft. head, Venice Calif..*365
Test head designed to prevent leakage during tests j*308
Divers place pipe in 60 ft. of water on Seattle sewer job j782
Gas line, 250-mi., welding and laying methods, Calif. e44, *54
Gas main accidents in Europe due chiefly to cold. C. H. Pollog..... 496
Hartford, Conn., asks bids on 3 kinds of 42-in. pipe e2, n30
Hydraulic formulas incorrect for partly filled pipes. C. W. Sherman.....*253
Joints:
Victaulic joints, good service under trying conditions, W. B. Damsel..l 702
Welded joints used in long oil pipe line, Cushing, Okla. and Chicago... 927
Large water pipe, materials, joints, coatings and cause of breaks and other factors in design and construction. e914; C. W. Burdick; P. Hansen; D. W. Howes; D. H. Maury; A. Potter; F. E. Winsor; R. E. Horton.....*922
Laying a welded pipe line in the Southwest n*119
Natural gas lines in Calif.....n474
Natural gas, pipe lines to market....e951
Newark rejects low bid for water line..n788
Pump discharge headers and piping. F. G. Cunningham a*24, l*943; P. Armin l*942
Reactions at pipe bends, diagram. E. M. Buckingham j*230
Seattle water pipe contract rescinded...n703
Steel:
New York City, large water mains of steel. W. W. Brush *408
Tapered pipe lines for economical gas transmission *779
Temperature variations cause trouble on Jerusalem water-pipe lines. A. Palotan 415; W. B. Damsel .....l 702
Tile drain supports sewer pipe (Ric-Wil Co.) n*746
Tunnels for water-mains under railroad tracks a*816
Vyrnwy aqueduct, cleaning brush lost and found again. J. R. Davidson..l 1021
Water-pipe practice in Detroit. G. H. Fenkell *410
(See also Aqueducts; Conduits; Penstocks; Sewers; Water mains.)
Pittsburgh, lower court overruled on Greater Pittsburgh charter n74, n629
Plant layout. (See Concreting plants; Construction plants.)
Plaster, wire mesh reinforcement as base for (Nat'l Steel Fabric Co.).....n*390
Pliers, parallel-jaw, of new type (Kant Slip Plier and Tool Co.) n*906
Pneumatic sheeting driver (Chicago Pneumatic Tool Co.) n*389
Poles, steel, used because of termite attacks. 378
Portland Cement Association, annual meeting, Nov. 18-20; elects officers.....n906
Ports and harbors:
Bremerhaven, Germany, large flood gate constructed 208
(See also Rail-and-water terminals.)

POWER AND POWER PLANTS
British Columbia (Kamloops) plant sold to private corporation n903
Steam and electric plant of Louisiana Steam Products, Inc., exchanging by-products e713
(See also Electric power; Hydro-electric power; Steam power.)
Precast units. (See Concrete units.)
Pressure regulator uses hydraulic valve (Pelton Water Wheel Co.) n*791
"Products or dividends" tables. C. B. Gilbert .....l 231
Public lands. (See Land.)

PUBLIC UTILITIES
Colorado commission forbidden to impose penalties n788
Valuation:
Rehearing asked by Calif. public services n190
Denied n707
(See also Railway valuation.)
Public works:
Chile has large fund for city and state public works 803
Why taxes rise e518

PUMPS AND PUMPING
Baltimore sewage-station, additions to mechanical equipment. C. E. Keefer..*333
Bulk cement pumped across river for concrete highway job. M. Kind *879
Centrifugal:
Air-cooled motor drives pump (Union Iron Works) n*437
Double-diaphragm power pump (John Lauson Mfg. Co.) n*237
Non-clogging trash pump in portable form (C. H. & E. Mfg. Co.) n*746
Pump discharge headers and piping. F. G. Cunningham, a*24, l*943; P. Armin l*942
Simple method of varying head in testing drainage pumps. J. G. Sutton & S. H. McCrory *177
Triple-expansion pumping engines for London water-works 819
Truck-mounted pump cleans sewer catch basins (Four Wheel Drive Auto Co.) .n*791
Various pump header arrangements: A.W.W.A. convention *25

R

Radio used for dispatching yard locomotives 768

RAIL-AND-WATER TERMINALS
Decision of I.C.C. on terminal charges..e915
Jersey City, marine terminal projected..n864
Separation of railroad terminal charges found not warranted 800
Rails. (See Railway track and trackwork.)
Railway and Utility Commissioners, National Association of, annual convention, Aug. 27-30 .....n435

RAILWAY CARS
Dynamometer and dynagraph car for testing, on Brazil railways 208
Dynamometer car, largest in world, No. Pacific. Ry. *305
Ferries. (See Ferries.)
"Setrain" carrying freight cars between New Orleans and Havana. J. O. May *368
Track-recording device, East Africa....*462

RAILWAY CONSOLIDATION
I.C.C. considering plan.....n155, e203
Plan puts railroads into 19 large systems n1022
Railway construction:
Heavy construction on new line for L. & N. R.R. through Cumberland Mts. of Kentucky *916
Railway economics:
Improvement expenses for 1928..... 733
Pere Marquette, operating economies e637; F. H. Alfred *644

RAILWAY ELECTRIFICATION
Italian engineers electrify Simplon tunnel line 701
Pennsylvania R.R. electrification of line from Manhattan Transfer to New Brunswick n632
Pennsylvania R.R., line to Baltimore....n667
Spain, progress 225
Railway gun, heavy, to cross U. S..... 17
Railway location and relocation:
Grand Trunk relocates line through South Bend, Ind. *538
New York Central to relocate tracks in New York City n986, e993
Railway maintenance of way:
New machines for maintenance (Nordberg Mfg. Co.) n*157

RAILWAY OPERATION
Freight:
Calculating length limits for shipping pieces longer than one car. H. K. Stephenson j*506
Crane loads cars on ship for ocean transport. J. O. May *368
I.C.C. against off-track freight deliveries in N. Y. n311
Freight train, heavy, C.R.P. Ry., average speed; correction 51
High-capacity dynamometer car for efficiency on large freight locomotives...*305
Motor vehicles, use of:
Store-to-store delivery by Boston & Maine Transp. Co. n634
Pere Marquette Ry., operating economies. e637; F. H. Alfred *644

*Illustrated: a, abstracts; e, editorials; j, job and office; l, letter; n, news

Railway rates:
Separation of charges at rail-water terminals not warranted 800
Railway repair shops. (See Railway terminals, engine.)
Railway terminals:
Cincinnati, passenger and equipment terminals, bids asked n31
Costs and values e993
Engine:
Locomotive repair shops: design and equipment 211
Freight:
Chicago & Northwestern Ry. station with air-rights warehouse.....*325
Manhattan's freight e480
New York City, union terminal designed n433
Milwaukee, municipal car-ferry terminal for harbor.n115, e280, *301; L. R. Kent 1 588; "Car-Ferries" .....l 666
Passenger:
Boston & Maine R.R. station, complaint dismissed n742
Buffalo, new terminal.....n*152
Houston, Tex., to get new station....n152
East St. Louis, Ill., new Union depot proposed n742
Los Angeles station case decided in favor of railroads n900
Manchester, England, long platform.n*274
New Orleans, Illinois Central accepts plan n473
(See also Rail-and-water terminals.)

RAILWAY TRACK AND TRACKWORK

Rails:
Transverse fissures, their cause and prevention a927
Ties:
Adzing machine and power-operated jacks (Nordberg Mfg. Co.) n*157
Concrete ties on European railways...*373
Substitute ties e598
Treated ties used by Santa Fe.....a858

RAILWAY VALUATION:

New York Central system, valuation announced n900
No fixed rule—O'Fallon case e45
O'Fallon case, further comment. J. P. Snow .....l 150
St. Louis & O'Fallon case reopened by I.C.C. n1026
Railway yards:
Fresno, Calif., So. Pacific's new freight yard *89

RAILWAYS

Boston & Maine R.R. announces construction program n825
Brazil, dynamometer and dynagraph car for testing 208
Canada, purchase of Alberta provincial railways approved n31
Chicago, Rock I. & Pacific train wreck due to washout, Colo. n152
Eastern states, 17-line merger proposed.n472
French mountain railway, difficult tunnel and bridge work *9
Grand Trunk relocates line through South Bend, Ind. *538
Great Northern and Western Pacific Rys., proposed construction in northern Calif. F. G. Dorety .....l 113
Hudson Bay-Mexico railroad proposed...n594
Hudson Bay R.R.'s new line to Port Churchill n475
India, developments 941
Kentucky, branch to reach coal and timber lands to be constructed.....n900
Long Island R.R. seeks to abandon non-remunerative branch e159
Louisville & Nashville R.R., heavy construction on new line *916
Montana, new branch roads planned....n273
New England wants to keep roads independent of trunk line control e794
New Mexico, two roads to extend lines..n946
New York Central to relocate tracks in New York City n986, e993
Northern Alberta railways plan extensions n902
Northern Pacific Ry. proposes extension in Montana n671
Over-Seas Railways, Inc., freight car service between New Orleans and Havana. J. O. May *368
Pere Marquette Ry., operating economies. e637; F. H. Alfred *644
Pittsburgh & West Virginia R.R. seeks extension n232
Russia planning new railways 327
St. Louis-San Francisco Ry. builds extension to tidewater, Fla. *168
Salvador-Guatemala, new ry. completed. 136
Southern Pacific R.R. celebrates opening of line between Klamath Falls and Alturas n511
Union Pacific ordered to build new line in Oregon n985
Wabash R.R. proposes two new trunk lines, for eastern U. S. n30
Western railways plan extensions.....n384
(See also Electric railways.)

RAINFALL AND RUNOFF

Analyzing records of intense rainfall. A. F. Meyer l*72
Baltimore, Md., duration of rainfall and sunshine *53
British rainfall, notes on the recent drought. M. N. Baker *497
Central Massachusetts, heavy rainfall and hail, Sept. 20, 1929. H. P. Eddy, Jr..l 628
Great Britain, low rainfall 266
New Orleans streets under 6 ft. of water n*432
Northwest water shortage relieved by rains n984
Southeastern states suffer from heavy rains n*589, e597
(See also Floods and flood control; Soil erosion.)
Rapid transit:
Chicago, new plan proposed.....n743

REGIONAL ENGINEERING AND PLANNING

Cincinnati, commission organized..... 103
Industry and regional study.....e873
New York state, recent city and regional planning. G. B. Ford..... 94
Westchester County, N. Y., translating theory into practice e440; J. Downer and J. Owen *442
Reinforced concrete. (See Concrete.)
Retaining walls:
Elaborate tests in connection with power development 66

RESERVOIRS

Bull Run reservoir:
Fills promptly, May 14th.....n*234
Burbank, Calif., cracks in concrete lining n434
Detroit, filtered water reservoir used for temporary storage. A. B. Morrill....j228
Detroit, new clear-water reservoir. E. A. Hardin *8
Filtered-water reservoirs, shunt system of operating, Detroit. E. A. Hardin *1011
Ground level concrete storage reservoirs, Chicago municipalities. J. A. Fulkman .....l 508
Oil. (See oil field engineering.)
Sacandaga reservoir, N. Y., last obstacle removed n73
Riprap dumped from scows by help of timber frame j781

RIVER IMPROVEMENTS

Des Moines River, laboratory model to determine benefits of cutoffs....e871, *886
Ohio River:
Canalization of, complete.....e639
Celebrate completion of improvements.n629
Opening of Dam No. 53.....n310
St. Lawrence River, failure to widen channel in American section n189
Stabilization methods used on the Indus recommended for Mississippi. P. Claxton, *619; L .B. Smith .....l 899
Stream control by means of jetties (Kellner Jetties Corp.) n*832

RIVERS

Arkansas River, dispute over water....n826
Colorado. (See Colorado River.)
Connecticut and Delaware rivers, Supreme Court takes action.....n900
Delaware River, tri-state compact. C. F. Breitzke l 112; W. Easby, Jr. .....l 231
Des Peres River, putting under ground. St. Louis n*945
Indus River, India, stabilization methods. P. Claxton *619; L. B. Smith.....l 899
James River, Va.:
Improvements planned.....n233
U. S. to make surveys n349
Mississippi River. (See Mississippi River.)
Pollution. (See Industrial wastes; Water pollution.)
Rio Grande project disapproved of by Sec'y of Interior n787
Riverbank encroachment....n117, e121, n155
South Platte River, survey of resources being made n513
U. S. rivers studied.....n154
(See also Floods; Water compacts; Water rights; Waterways.)
Roadmasters and Maintenance of Way Association, meeting, Chicago, Oct. n632

ROOFS AND ROOFING

Asbestos roof section laid flat (R. A. Laidlaw) n*869
Concrete roof slabs made with light aggregate (Federal Cement Tile Co.)..n*551
Hangers carry expansion ends of long roof trusses, Flint auditorium. W. S. Wolfe *801
Stadium, Chicago, long-span trusses. C. H. Westcott *611
Steel roof deck units 6 in. wide—"Ferrobord" (Truscon Steel Co.).....n157
Steel roof has smooth surface (General Steel Co.) n*353
Russia:
An American engineer's impressions. L. White *652
American firm to build Russian industrial plants n825

S

St. Paul, Minn. offers city hall and courthouse for sale n272
Sand and gravel plant, Cincinnati, O.....n*478
Sand, rock and gravel firms on West Coast unite n189
San Francisco Bay, salt water advances... 621
Sanitation:
Carolina Piedmont region, sanitary engineering 255
Country schools. W. S. Johnson.....l 187
Water and sewage control for state institutions, Maryland. G. L. Hall & W. W. Blohm 52
Saws:
Electric drill and hand saw made in portable size (Wodack Electric Tool Corp.) n*552
Heavy-duty portable saw (Skilsaw, Inc.) n*832
Saw rig powered by industrial tractor developed by Texas Power & Light Co.n*79
Scaffolding:
Metal tubular scaffolding adjustable to meet special conditions (Patent Scaffolding Co.) n*635
Scoop, wheeled, controlled from tractor (W. A. Riddell Co.) n*989
Scraper, self-loading, operated by one man (Highway Trailer Co.) n*990
Screening plant, self-contained, operated by one man (Barber Greene Co.).....n*746
Seattle considers bridge or vehicular tunnel n1024

SEWAGE DISPOSAL

Fertilizer use of sludge:
Pulverizing and screening dried sludge, Milwaukee *617
Sludge disposal problems.....e2
Sewage sludge:
Sampler and level finder j*70

SEWAGE TREATMENT

Activated sludge:
Japan, first two plants. T. Kawahara.*938
New York, proposed plant at Ward's Island n593, *1005
Small plant with mechanical aerators, Princeton, Ill. 762
Tri-Cities, circulation studies..... 218
Aeration:
Spiral flow in aerators applied for first time at Indianapolis 623; C. H. Hurd l*738; P. A. Sandford l*1021; C. H. Hurd .....l 1021
Filters, trickling, used in Singapore.... 938
Imhoff tanks, improvements. O. Mohr *647; correction E. L. Waterman....l 898
Middletown, N. Y. basing requirements on stream pollution studies. A. C. Purdy.*813
Progress of sewage treatment in North America. K. Imhoff.....*528; e561

SEWAGE-WORKS

Baltimore sewage-pumping station, additions to mechanical equipment. C. E. Keefer *333
Cape Town, brush filters..... 8
Chicago Sanitary District, construction up to requirement n1024
Chicago, work resumed on West Side plant, largest in world.....n741
East Rochester, N. Y., unique settling tanks put into use n1023
Indianapolis, sewage-works operation 623; C. H. Hurd l*738; P. A. Sandford l*1021; C. H. Hurd .....l 1021
Japan, first two activated-sludge plants. T. Kawahara *938
New Haven, Conn., plans.....n116
New Haven sewage plant job goes to local contractors e834, n866; L. R. Ash .....l 942
New York City, plans for activated-sludge plant at Ward's Island.....n593
New York City, proposed activated-sludge plant *1005
Numbers and quality.....e561
Princeton, Ill., operation of works..... 762
St. Paul and Minneapolis, joint sewage-works planned .....n 170
Springfield, O., new south-west works. G. S. Russell *731
Standardization of cast-iron specials needed. P. A. Ivy .....l 231
State institutions, water and sewage control. G. L. Hall & W. W. Blohm... 52
Uniform accounting urged..... 455
Urbana and Champaign works, operation. 802
Worcester, Mass., sewage-works operation. R. S. Lanphear. I—Grit chambers and bar screens. *124. II—Imhoff tanks and sludge-drying beds. *180. III — Dosing tanks, sprinkling filters and settling tanks..*222

SEWERAGE

Camden County (N. J.), commission to study problems n117
Greater Washington district, problems to be studied n742
Sewerage systems:
Charges authorized in New York state for use of municipal systems..... 10
Mexico, municipal systems increasing... 256

SEWERS

Dry-weather sewage-flow diverters to Philadelphia interceptors a845
Minimum sewer grades. E. McCullough j229; correction 383
New York sues to recover excess payments on Queens sewers n903
Seattle, overflow chamber separates sanitary and storm flows.....j*1019
Venice, Calif., spun concrete pipe, cost less than cast iron *365

SHIPS AND SHIPPING

Boats, arc-welded steel, built by Army engineers n*157
Diesel-driven compressed-air towboats for Mississippi River rejected.....n314
"Setrain," carrying freight cars between New Orleans and Havana. J. O. May.*368
Towboats, diesel-driven, for Mississippi service, bids rejected n314
(See also Ferries.)

SHOVELS

Gasoline shovel improvements (Northwest Eng'g Co.) n*353
Gasoline shovels shipped without dismantling by 100-ton derrick boat....n*903

*Illustrated: a, abstracts; e, editorials; j, job and office; l, letter; n, news

Mining shovel used in Brooklyn subway excavation n*193
Power-shovel production grading highway roadbed e834; A. P. Anderson 860
Silencer lessens construction noises (Maxim Silencer Co.) n*433
Siphons:
Yakima project, building high-head siphons *763
Smith, M. H., memorial unveiled n669
Snow fence, designed for easy handling and storage—"Sno-bar" (G. L. Barrus Co.) n*315
Snow plow, high-speed, attachment for Ford trucks (Baker Mfg. Co.) n*906
Society for the Promotion of Engineering Education:
Convention, June, 1929; general theme: the graduate and his work 14

SOIL EROSION

Grassed shoulders on highways resist erosion e599; J. D. Waldrop 1 627
Terracing to combat soil erosion losses; studies by Dept. of Agriculture, e834; C. E. Ramser *848
Soil mechanics. (See Foundations.)
South Carolina Society of Engineers, organized Nov. 7 ..... n788
Southwest Water Works Association, meeting, Tulsa, Okla., Oct. 28-30 ..... n741
Spillways. (See Canals; Dams; Hydraulic gates; Mississippi River; Reservoirs; Rivers.)
Stacks:
High concrete stack razed in close quarters by blasting, St. Petersburg, Fla., E. Nordstrom *775
Stadiums:
Chicago, covered stadium with long-span roof trusses, C. H. Westcott *611
Good view factor in design, M. Serby *59; G. Hadden 1 898; M. W. Serby 1 898

STANDARDIZATION

Agreement between Amer. Stand. Ass'n and U. S. Bur. of Standards n119, e122
Core drill standards adopted by Bur. of Standards n35
Individual creativeness and standardization n1
Lack of standards e201
Standardization of cast-iron specials needed, e201; P. A. Ivy 1 231
Unnecessary fire losses due to unstandardized fire connections e160
State Boards of Engineering Examiners, annual convention, Aug. 26-28 ..... n434
State Sanitary Engineers, conference (annual), Minneapolis, Sept. 28-Oct. 1 ..... n593

STEEL AND STEELWORK

British study of steel design planned 404
Burnaby, B. C., new steel-fabricating plant 648, n707
Federal Trade Commission rulings n906
Inferior structural steelwork, e755; A. W. A. Eden *773
Mergers form third largest steel co. n989
Nirosta steel, a new alloy (Ludlum Steel Co.) n119
Reinforcing steel, trade rules approved, e517, n551
Technical bulletins on steel available, A.I.S.C. 103
U. S. Steel buys Atlas Portland Cement Co. n989, e991
(See also American Institute of Steel Construction.)
Steel Founders Society of America:
Cost records of production sought n746
Stock market crash—effect on construction, e713
Stock market crisis, a call to common sense, e793

STORMS

Bahamas and Florida, third hurricane in 3 years n547
Lake levels and damage to shore property at Chicago e757, *767
Lake Michigan storms damage Chicago n704
Protection for lakefront building at Chicago *920
Wind vibration again e637
(See also Bridge stresses; Building design.)
Strain measuring instruments:
Strain gage set-up to secure long gage length, D. P. Thayer j*505
(See also Stresses.)
Stream pollution. (See Water pollution.)
Streamflow measurements. (See Hydraulics.)
Street railways. (See Electric railways.)

STREET TRAFFIC

Automatic device for traffic direction (Automatic Signal Corp.) n*673
Combating traffic vibration and noise, S. E. Slocum, 688; H. S. Williams 1 898
Committee on relief of congestion appointed n509, e597, n632
Lamont committee reports on uniform regulation n1024
Majority should rule e518
New York City, relief measures outlined in report n703
Parking:
Chicago's no-parking ordinance held invalid n740
Public Safety division of Nat'l Safety Council stresses traffic control at congress, n591; correction H. S. Simpson 1 737
Sidewalk traffic conditions and obstacles shown by study of Calif. cities, e280; C. S. Moore *297
Traffic regulation, faulty, e1714; "Engineer" 1 942
(See also Highway traffic.)

STREETS

Catch-basin inlets on hillside street, Maplewood, N. J., H. W. Heilmann *852
Cheney, Wash., lighted streets guide aviators j309
Chicago plans new roads and elevated street n32
Gravel side-streets, little-used, to be utilized for playgrounds, Sweetwater, Tex. j*1020
Parallel streets vs. boulevards, e83; L. P. Blum 1 187
Paving. (See Pavements and Paving.)
Sanitation problems discussed by conference n546
Sao Paulo, Brazil, improvements 409
(See also Highways.)

STRESSES

Beams:
Curved, stresses studied by plaster-model tests 733
Load deflection curves for spliced and unspliced beams, A. W. Schenker j*507
Bridge. (See Bridge stresses.)
Code for structural welding e202
Concrete pavement slabs, stresses set up by temperature, C. Older 530
Precast concrete piles, spacing suspension points for, E. G. Paulet *260
(See also Strain measuring instruments.)
Strikes. (See Labor.)

SUBWAYS

Buenos Aires, new subway 655
New York City:
Equipment contracts let n384
Mining shovel used in Brooklyn subway excavation n*193
Proposed new system n473
Oslo, Norway, subway 225
Surveying instruments:
Transit, aluminum, with a 50-year record *367
Surveys and surveying:
Aerial and ground surveys of Ohio River n434
Aerial survey in Alaska discloses power site 419
Office work reduced by new drafting instruments (Miner & Leatherman Co.) n477

T

TANKS AND STANDPIPES

Economical proportions of storage tanks, R. Fleming 171
Oil. (See Oil field engineering, tanks.)
Septic tank, 1,000-ton, raised by flood, replaced, O. P. Mahoney j149
Taxes:
Chicago tax muddle e952
Virginia, taxpayers object to paying twice for improvements 698
Why they rise e518
Telegraph lines:
Relic of first overland telegraph, sound after 70 years, W. M. Maule *583
Tests and testing. (See A.S.T.M.; Engineering research; also names of various materials and structures.)
Thread-lock, new (Dardelet Threadlock Corp.) n*119
Ties. (See Railway track & trackwork.)
Tile:
Hollow clay wall tile, fire resistance of 299
Tile drain supports sewer pipe Ric-Wil Co. n*746
Timber. (See Wood.)
Timber frame, floating, used as guide for dumping riprap from scows j781
Towers:
Concrete tower, 200 ft., in Hampshire, England, W. Brummitt j*587

TRACTORS

Hoist attachment for tractor (Luther Mfg. Co.) n*747
New boom attachments for (Allsteel Products Mfg. Co.) n*636
Roller attachment for (Davenport Locomotive & Mfg. Corp.) n*353
Special type for unusually soft ground (Cleveland Tractor Co.) n*949
Traffic. (See Air traffic; Highway traffic; Street traffic.)
Trailers:
Crawler trailer with 9-cu.yd. body used at rockfill dam, H. Keesling *616
Tramways:
Aerial:
High-speed electric cableway carries heavy loads, canyon in Calif. n*516
Colombia, general-traffic cable tramways, R. Fawcett *127
Transit, surveying. (See Surveying instruments.)
Transmission lines. (See Electric power transmission.)
Transportation:
Calculating length limits for shipping pieces longer than one car, H. K. Stephenson j*506
Electric power transformers demand special shipping arrangements n*312
(See also Highway traffic; Motor vehicles; Railways; Rapid transit; Ships and shipping; Waterways.)
Trenching and trenching machines. (See Excavating machinery.)
Trucks, motor. (See Motor vehicles.)
Trucks, three-wheel, for acetylene apparatus (Oxweld Acetylene Co.) n*673

TRUSSES

Circular trusses support planks closing plug keyway j*228
Long-span roof trusses, Chicago stadium, C. H. Westcott *610
Roof trusses, expansion ends carried by hangers, W. S. Wolfe *801

TUNNELS

Boston vehicular tunnel approved n946
Circular trusses support planks closing plug keyway j*228
Detroit-Canada vehicular tunnel e598, *600
East Boston vehicular tunnel plans n273
Holland tunnel, June breaks traffic records n115
Moffat tunnel:
Blocked by roof fall n188
Denver takes over pioneer bore n944
Lease of D. & S. L. R.R. upheld n509
New York-Brooklyn, permission for new tunnel under East River n435, n589
New York City, two new vehicular tunnels indorsed n188
Owyhee dam, diversion tunnel in operation n*547
Pipe tunnels for water-mains under railroad tracks a*816
Railway:
French mountain railway, difficult tunnel and bridge work *9
French railway tunnel repaired with precast concrete invert beams *138
L. & N. builds four tunnels through Cumberland Mts. *916
Moffat tunnel. (See Tunnels, Moffat.)
Repair of roof girders in street underpass, e638; H. T. Welty *642
Seattle considers bridge or vehicular tunnel n1024
Tampa Bay, Fla., vehicular tunnel proposed n864
Under water tunnel, largest vehicular, under Mersey River, England *1017
Waterville, N. C., hydro-electric project, lining keeps up with driving e159, *173
(See also Aqueducts; Sewers; Subways; Water mains.)
Turbines:
Designing steel supports for 1,400-ton steam turbines, F. A. Ericson *264
Turnbuckles welded into bridge eyebar diagonals, H. F. Cole j*585

TYPHOID FEVER

Decline in 12 American states 140
Ogden, Utah, outbreak attributed to public water supply n272, e439, 457
Sanitation at country schools, W. S. Johnson 1 187
U. S. typhoid in large cities in 1928 103
Winston, Mo., polluted well causes typhoid e43, n73
Wisconsin epidemic caused by water supply, n703, e713; S. P. Baird 1 898

U

Underpinning (See Foundations.)
U. S. Bureau of Reclamation appoints three consultants n30
U. S. Civil service. (See Civil service.)
U. S. gets big judgment in lumber sale suit n189

V

Valuation. (See Public utilities; Railway valuation.)
Valves:
Automatic air relief valves for varying pressures (Automatic Primer Co.) n*1027
Hydraulic valve used in pressure regulator (Pelton Water Wheel Co.) n*791
Venturi meters:
Standing wave flumes again compared with Venturi meters, C. C. Inglis, 1 112; C. Herschel, 1431; C. C. Inglis 1 701
Viaducts:
New York City, Riverside viaduct; correction 22

W

WAREHOUSES

Chicago, air-rights warehouse over C. & N. Ry. freight station *325
Design of a modern cold storage warehouse, Philadelphia, F. O. Dufour *520
Rapid construction by standard methods of reinforced-concrete building, J. F. Miller *485
Warner, E. P., made editor of "Aviation" n*74
Water-and-rail terminals. (See Rail-and-water terminals.)

WATER COMPACTS

Delaware River, tri-state compact, C. F. Breitske, 1 112; W. Easby, Jr. 1 231
Rio Grande project disapproved of by Sec'y of Interior n787
Water consumption:
British rainfall, water consumption and water treatment, M. N. Baker *497
Water conservation:
Emergency conservation in Prussia 526
Water intakes:
Detroit awards contract for intake lagoon n593

*Illustrated: a, abstracts; e, editorials; j, job and office; l, letter; n, news

WATER MAINS

British water-pipe practice and experience. M. N. Baker *405; J. R. Davidson ..... l 1021
Cast iron mains, diagram gives reactions at bends. E. M. Buckinham j*230
Detroit, Mich., water-pipe practice. G. H. Fenkell *410
Hartford, Conn., cast iron, steel or reinforced concrete, 15 yrs. experience. C. M. Saville *400
Jerusalem, temperature variations cause trouble on pipe lines. A. Palotan. 415; W. B. Damsel ..... l 702
Large water pipe, materials, joints, coatings and cause of breaks and other factors in design and construction. e914; C. W. Burdick; P. Hansen; D. W. Howes; D. H. Maury; A. Potter; F. E. Winsor; R. E. Horton.... *922
New York City uses steel for large mains. W. W. Brush *408
New York State, experiences in cleaning 7 mi. of castiron main. A. T. Clark.. *411
Pipe and problems.—Pipe from source to consumer. e397, e399
Tunnels under railroad tracks for mains. a*816
(See also Pipe and pipe lines.)

WATER METERS

Glen Ridge, N. J., town water supply fully metered. S. L. Van Norden.... 347
San Francisco, notable record 803
Turbine meter, improved Worthington type n*35
Volumetric meter for irrigation and industrial uses. j*507
Wisconsin, annual cost of metered water in 21 cities *655
(See also Venturi meters.)

WATER POLLUTION

Basing sewage-works requirements on stream pollution studies. A. C. Purdy *813
Bathing in public supplies e479
Checking phenol pollution in Lake Michigan 288
Chicago River, plant to check industrial pollution n153
Cuyahoga County, cleaning up streams.. 721
Great Lakes, steps to prevent pollution 800
Illinois, new water board controls waste discharge n473
Salt water advances up San Francisco Bay 621
Stream pollution control in Ohio 895
Water power. (See Hydro-electric power.)
Water resources:
South Platte River, survey being made n513
Water resources branch of Geol. Survey opens two new offices..... n116
Water rights:
Connecticut and Delaware Rivers, Supreme Court takes action in dispute. n900
Kansas and Colorado in dispute over Arkansas River water n826

WATER SUPPLY

Albany, famine due to various accidents n310
Calgary, Alberta, new supply planned. n904
East Bay Municipal Utility Dist., Calif., Mokelumne project completed..... n154
England:
Little relief for shortage..... n153
Shortage causes drastic measures.... n188
Falmouth, Mass., corrosive action corrected by hydrated lime. E. S. Chase j70
Glen Ridge, N. J., supply fully metered. S. L. Van Norden 347
Kingsport, Tenn., supplementary supply. H. F. Wiedeman *219
Manila, P. I., emergency restoration of supply. A. Gideon *897
Mexico City, extensions planned..... n351
Montana, Chinook dist., shut-off threatened by government n154
New Jersey, engineers to study relief for shortage. n189
New Jersey, Ramapo watershed recommended. n116
New York state, sanitary protection of public supplies 103
Parkersburg, W. Va., removes CO_2 from new well-water supply. M. G. Mansfield *727
Rating public supplies on basis of purity a1007
Rochester, N. Y., court decision gives city right to enlarge system n901
Sacramento to vote on bond issue for domestic supply project..... n510
San Francisco, Hetch Hetchy project:
All but San Franciscans barred, n434, e439
Ready in three years..... 937
State institutions, water and sewage control. G. L. Hall & W. W. Blohm.... 52
Wisconsin, annual cost of metered water in 21 cities *655

WATER TREATMENT

British water consumption and treatment. M. N. Baker *497
CO_2 removed from well-water. Parkersburg, W. Va. M. G. Mansfield.... *727
Corrosive action corrected by hydrated lime treatment. E. S. Chase..... j70
Filtration:
Filter sand troubles considered at Detroit meeting 504
New index for determining wash-water rates in rapid filters *696
New devices for purification (Wallace & Tierman Co.) n*35

WATER-WORKS

A.W.W.A. (See American Water-Works Association.)
Changes in public water supplies e2
Davenport, Ia., to vote on purchase....n512
Against buying Water Company, n669, e676
Detroit, new reinforced concrete clear-water reservoir. E. A. Hardin..... *8
Detroit, sand expansion instead of wash-water rise as criterion of cleaning..*696
Evansville, Ind., improvements reduce fuel costs. H. F. Lutz *997
Filtration plants:
Detroit, shunt system of operating filtered-water reservoirs. E. A. Hardin *1011
Nashville, Tenn., new filtration plant dedicated n593
German water-works from a Far Eastern viewpoint. H. Stringer..... 580
Kansas City, water-works exempt from assessment n473
Municipal ownership—handwriting on the wall e676
New Canaan, Conn., increasing height of small dam without interruption of service. O. H. Marchant *179
Office buildings e397
Pumping stations:
London, Eng., two large triple-expansion engines 819
Los Angeles to have new station....n739
San Jose, Calif., water-works design provides for earthquakes..... 897
Water-Works Mfrs. Ass'n makes new exhibit ruling n35
Waterfront utilization e44
Waterproofing:
Compound "Irox" uses iron as base (U.S. Waterproofing Co.) n*674

WATERWAYS

Barge-line rates e756, n790
Criticism of editorials on, L. R. K. Sherman 1113; e241; S. Van Pelt 1271
Illinois waterway, changes in..... n867
Increased diversion from Lake Michigan asked for inland waterways..... n475
Inland waterways, A.S.C.E. convention, discussions e81, 105
Inland waterways—Hoover's policy....e677
List requested. E. R. Shnable..... 1508
(See also Canals; Rivers.)
Weirs:
Bonnet Carré spillway, Mississippi River, weir design questioned. W. B. Gregory *817

WELDING

Arc-welded bridges, specification for connections. e281; G. D. Fish..... *292
Arc-welded construction in Florida packing houses. j*306
Beams, auxiliary and pipe columns, connection between. R. M. Wilder..... j*308
Boats, arc-welded steel, built by Army engineers n*157
Bridge, electrically welded, opened in Poland 847
Casting flame cut, shipped and restored to use by welding j*147
Clamp-type electrode holder (General Electric Co.) n*477
Code for structural welding, Amer. Welding Society e83, 92, e202
Dual-drive welder driven by electric or gasoline motor (Westinghouse Co.)...n*870
Gas line, 250-mi., Calif., welding and laying methods..... e44, *54
Gasoline-driven welding generator (Westinghouse Mfg. Co. & Continental Motors Corp.) n*277
Gasoline welder equipped with fuel-saving device (Lincoln Electric Co.)..... n*712
Idling device saves fuel on gasoline welders (Lincoln Electric Co.)..... n*869
New steel floor deck of welded I-beams and plates, e317; L. H. Miller..... *328
New welded girder splice. A. W. Schenker j*507
Oil pipe line, welded joints used..... 927
Oxyacetylene:
Burner tip removes rivets (Alex. Milburn Co.) n*438
Gas-welding shop fabrication of a 300-ton mill building, Niagara Falls, e953; H. M. Priest and H. H. Moss *964
Kerosene torch preheats metal....n*1028
Mill building, gas welding design and erection, e913; H. M. Priest and H. H. Moss *928
Trucks for acetylene welders (Oxweld Acetylene Co.) n673
Pipe line laying in the Southwest..... n*119
Portable welding outfit uses six-cylinder motor (General Electric Co.) n*792
Power house frame, Atlantic City, electrically welded..... *376
Railway bridges, plates girders strengthened by welding on new material j*230
Repairing railway bridge girders by arc welding j*506
Roof girders in street underpass repaired. e638; H. T. Welty *642
Simplification of control, new welder and rod (Lincoln Electric Co.) n*389
Steel floors, special machine for automatic arc welding (General Elec. Co.)n*949
Surfacing metal applied by welding process (Fusion Welding Corp.)....n*746
Tractor frame extended to hold welding unit (Pontiac Tractor Co.)..... n*552
Welding rod, new type (Haynes Stellite Co.) n869
Waymouth, F. E., chief engineer of Colorado River aqueduct..... n74
Western Society of Engineers absorbs Structural Engineers' Ass'n of Illinois.....n114
Western Society of Engineers promotes its secretary, E. S. Nethercut.....n985
Western State Engineers Association, annual conference, 2nd, Reno, Dec. 9...n987

WHARVES AND DOCKS

London, system completed..... 429
New York City, advancement of Hudson River pierhead line refused n117
Rehearing asked.....e121, n155
Pier installation, Presque Isle.....n*673
Winch and scraper for use with light tractor (Miami Trailer-Scraper Co.) n*438
Winch, floor-type, hand-operated (Stephens-Adamson Mfg. Co.) n*277
Wind storms. (See Storms.)
Wire Rope Conference, 3rd, New York, Sept. 13. .....n389
Wire tightening speeded up by simple device (Royson Mfg. Co.) n437

WOOD

Electrical device determines dryness of lumber (Tag-Heppenstall moisture meter) n*636
Frame wall construction, tests by Forests Products Laboratory, e638; G. W. Trayer *656
Logging methods in Europe, "A Lumberman" 1627; H. W. Durham.....1942
Lumber consumption survey planned....n635
Lumber from army cantonments, sale suit won by government.....n189
Lumbermen to mark products.....n193

WOOD PRESERVATION

Creosote substitute used for California amusement pier, contractor held liable.*184
Railroad ties used by Santa Fe Ry..... 858
Wooten, W. P., to retire from Engineers Corps. n589
World Engineering Congress, Tokyo, Japan, Oct.—Nov. 1929:
American participation. n234
Large group of engineers starts for congress n545
Opening n*827
Oriental impressions, e835; K. K. Hoyt.. 859
Twenty-six nations represented.....n739
World Power Conference:
Second plenary meeting, Berlin, June 16-25, 1930 .....n743

X

X-ray films of cellulose nitrate barred by N. Y. Public Health Council n114

Z

Zoning. (See City planning.)

*Illustrated: a, abstracts; e, editorials; j, job and office; l, letter; n, news

AUTHORS' INDEX

Ahlers, J. G.: Progress and overtime balanced to speed building schedule...*250
Alfred, F. H.: Operating economies of the Pere Marquette *644
Allen, J. G.: Extra stories added to steel frame building *574
Allen, K.: Explosions of sewer gas.....1 666
Anderson, A. P.: Power-shovel production grading roadbed 860
Angas, W. M.: Cost of jacking culvert through fill j*663
Armin, P.: Pump discharge headers and piping 1*942
Ash, L. R.: Awarding contracts to local bidders 1 942
AtLee, W.: Courtesy an asset to the engineer 1 151
Ayres, L. E.: Detroit flood hazards from periodic lake rises *458

Baird, S. P.: Chance pollution of water supplies from wells 1 898
Baker, M. N.: British rainfall, water consumption and treatment *497
British water-pipe practice *405
Glasgow's refuse incinerator *345
Berresford, A. W.: Statements by officers of A.E.C. 1 942
Berry, G. N.: Concrete caissons cast in place with quick-hardening cement....j*306
Blee, C. E.: Baffle weir design..... *931
Blohm, W. W.: Water and sewage control for state institutions 52
Blum, L. P.: Parallel streets vs. boulevards. 1 187
Boardman, D. T.: More mortar and less rock in concrete 1 151
Bowers, N. A.: Effect of percolating water on concrete dams..... *212
Braasch, H.: Recent points in engineering law 263, 618
Breitzke, C F.: What the Delaware River compact does 1 112
Bricard, M.: Paris incinerator converts refuse into electric power..... *974
Brummitt, W.: Concrete tower in England. j*587
Brush, W. W.: Steel used for large water mains, N. Y. C..... *408
Buckingham, E. M.: Diagram gives reactions at pipe bends j*230
Burdick, C. B.: Reliable pipe for main arteries 922

Calhoun, J.: Culvert moved by stump puller and rollers j*782
Canavan, R.: Standard binder for filing miscellaneous data j*663
Chace, W. G.: Percolation through dams.1*664
Chandler, E. L.: Automatic roof weirs used on spillways *685
Charles, H. C.: Clamshell buckets and rocky excavations j664
Chase, E. S.: Hydrated lime treatment overcomes corrosive action of water... j70
Christman, L. P.: Concrete arch bridges, Berks Co., Pa. *15
Clark, A. T.: Cleaning 7 miles of cast-iron pipe *411
Clausen, C. K.: Locating curves in the field without instruments j*148
Claxton, P.: Stabilization methods used on Indus River *619
Cole, H. F.: Turnbuckles welded into eye-bar diagonals j*585
Conner, C. N.: Airport surfaces *855
Cooper, H. L.: Concreet should not be poured 1 628
Costello, J. K.: Delaware River bridge traffic *104
Coyle, D. C.: Capitol dome, Olympia, Wash. *90
Cross, H.: Stresses in counterweight tower of Hackensack bridge 1 784
Cunningham, F. G.: Pump discharge headers a*24, 1*943

Damsel, W. B.: Good service from pipe joints 1 702
Davidson, J. R.: Cleaning brush in Vyrnwy aqueduct 1 1021
Day, C. L.: Spheroidal design for oil tanks *416
DeBerard, W. W.: Atchafalaya floodway.*492
Bonnet Carré spillway *242
Engineer district organization for Mississippi flood protection *571
Dibbell, H. A.: Electrical device for determining surface elevations..... j*584
Doolittle, H. L.: Big Creek 2-A penstock.*482
Dorety, F. G.: Proposed R.R. construction in northern California..... 1 113
Downer, J.: Regional engineering in Westchester County *442
Doyne, M. H.: Building approach to St. Louis bridge *649
Dufour, F. O.: Modern cold storage warehouse *520
Duncan, G. A., Jr.: Older than the iron horse *291
Durham, H. W.: European lumbering methods 1 942

Easby, W., Jr.: Interstate waters 1 231
Eaton, E. C.: Dalton multiple-arch dam..*994
Eddy, H. P., Jr.: Heavy rainfall in central Massachusetts 1 628
Eden, A. W. A.: Inferior structural steelwork *773

Emori, Yasuhei: Durax pavement for steep grades *18
English, H. W.: Drainage-ditch system.. *97
Ericson, F. A.: Designing steel supports for steam turbines *264

Faulkner, H. F.: Dummy joints prevent cracks in concrete pavements *607
Fawcett, R.: General-traffic cable tramways in Colombia *127
Fenkell, G. H.: Water-pipe practice at Detroit, Mich. *410
Fish, G. D.: Arc-welded connections in bridges *292
Fleming, R.: Economical proportions of storage tanks 171
Ford, G. B.: City and regional planning, N. Y. state 94
Frankland, F. H.: Beauty in engineering work 1 783
Franklin, P. A.: Tall bridge pier construction in engine roundhouse..... *451
Fry, A. S.: Dallas reclaims acres in heart of city *804
Reconstructing a drainage-ditch system. *97
Fulkman, J. A.: Storage of water at ground level 1 508
Fuller, A. H.: Strain and stress measurements in bridges 1 543

Gault, H. J.: Stony Gorge dam..... *46
Gerstrom, C. G.: Thirty-two-rope cable suspension system on bridge *881
Gideon, A.: Emergency restoration of Manila water supply *897
Girand, J., Jr.: Small arch dam design governed by economy need *569
Girand, J. B.: Earthquake leaves arch unsupported 1*588
Glick, G. W.: Underpinning old Manhattan Life Building *214
Goodwin, G.: Streamflow measured by simple method j*661
Gregory, W. B.: Hydraulic experiments on the Bonnet Carré spillway *817
Griesenauer, G. J.: Substitute for the compression test of concrete..... 846

Hadden, G.: Stadium designs..... 1 898
Hall, G. L.: Water and sewage control for state institutions 52
Hance, F. E.: Chemical treatment of hydraulic dam cores 542
Hansen, P.: Steel for water intake at Chicago 922
Hardin, E. A.: Clear-water reservoir, Detroit *8
Shunt system of operating filtered-water reservoirs *1011
Harris, A. B. B.: Bonnet Carré spillway believed wrong location *818
Harte, C. R.: Dictatorial policy of A.S.C.E. 1 628
Heilmann, H. W.: Catch-basin inlets on hillside street *852
Henry, S. T.: Reconstruction of Table Rock Cove earth dam..... *934
Herschel, C.: Add to Flumes..... 1 431
Hillman, C. E.: Cairo flood problem.... 1 702
Hinkley, W. O.: Crushed columns in Detroit building 1*543
Hogentogler, C. A.: Airport drainage.... *853
Holmes, J. A.: Long period settlement records of two earth dams *769
Horner, W. W.: St. Louis municipal airport *716
Horton, R. E.: Cast-iron pipe..... 925
Howard, R. S.: Savannah River floods Augusta, Ga. n630
Howes, D. W.: Materials for pipe..... 923
Hoyt, K. K.: Economic problems involved in public land policy *427
International highway to Alaska..... *286
World engineering congress, Tokyo.... 859
Hunley, J. B.: Ohio River bridge at Louisville *358
Hurd, C. H.: Spiral flow in sewage treatment 1 738, 1 1021

Imhoff, K.: Progress of sewage treatment in North America *528
Inglis, C. C.: Venturi meters and standing wave flumes 1 112, 1 701
Ivy, P. A.: Standardization of cast-iron specials 1 231

James, J. S.: Federal or state reclamation? 1 899
Johnson, G. A.: Incinerator specifications. 1 587
Johnson, N. C.: Is water-cement ratio the last word? 1 471
Johnson, W. S.: Sanitation at country schools 1 187
Johnston, B.: Tests on concrete at Coolidge dam 456, 1 543
Johnston, R. S.: Column tests of three grades of steel *999
Jourdan, J. W.: Hydraulic jump design for conduit *224

Kawahara, T.: Activated-sludge plants in Japan *938
Keefer, C. E.: Baltimore sewage-pumping station *333
Keesling, H.: Crawler trailer used at rock-fill dam *616
Kent, L. R.: Progress in car-ferry railway links 1 588
Kind, M.: Bulk cement pumped across river *879
Kirk, H. J.: Grade elimination on rural highways 1 544
Kittredge, R. B.: State's share in grade crossing improvement 364
Kitts, J. A.: Preventing percolation through dams 1 430
Krauth, Th.: Earth-handling equipment in Germany *84, *142

Lanphear, R. S.: Sewage-works operation at Worcester, Mass *124, *186, *222
Lavis, F.: Papers and meetings of A.S.C.E. 1 737
Leonard, J. A.: Titling construction photographs j*69
Lichtenburg, A. J.: Beauty as an ideal in engineering work 1 783
Lutz, H. F.: Water-works improvements at Evansville *997

McCrory, S. H.: Testing drainage pumps. *177
McCullough, E.: Chart for beam design.. j*586, 1 665
Minimum sewer grades j229
McIntosh, W. T.: Heavy foundations built under occupied basement *452
McMahon, G. H.: Inaccuracies in culvert designs j*307
McMillan, F. R.: Water ratio theory.... 172
McPhetres, D. M.: Concrete arch aids highway relocation *815
Magurn, E. A.: Theatres in Chicago office building *759
Mahoney, O. P.: Replacing septic tank raised by flood j*149
Maker, G. W.: Scheduling materials purchase in building work *522
Mansfield, M. G.: Parkersburg removes CO_2 from well-water supply *727
Marchant, O. H.: New Canaan water-works dam *179
Martyn, C. H.: Nailing wood strip on concrete fence posts j*150
Matsumura, T.: Hydro-electric plant in Chosen, Japan *678
Maule, W. M.: Relic of first overland telegraph *583
Maury, D. H.: Value of *C* for various pipe materials *923
May, J. O.: Crane loads freight cars on ship *368
Meyer, A. F.: Analyzing records of intense rainfall 172
Meyer, N.: Home-made outfit for copying field notes j*67
Miller, J. F.: Rapid warehouse construction by standard methods *485
Miller, L. H.: New steel floor for building use *326
Mohler, C. K.: Against toll bridges..... 1 151
Mohr, O.: Improvements in the Imhoff sewage settling tank *647
Moore, C. S.: Sidewalk traffic conditions and obstacles *297
Morrill, A. B.: Filtered water reservoir used for temporary storage..... j228
Moss, H. H.: Gas-welding design on mill building *928
Gas-welding shop fabrication of mill bldg. *964

Newcomb, R. V.: Compiling and preserving engineering data j780
Nicholson, G. F.: Asphalt treatment for concrete piles *95
Nordstrom, E.: High concrete stack razed in close quarters *775

Older, C.: Why joints in concrete pavements? 530
Oltarsh, D. M.: New York's multiple dwelling law 1 702
Ott, P. W.: Behavior of pendulum suspended from a rotating shaft..... 1 784
Owen, J.: Westchester County regional engineering *442

Paine, C. E.: Dynamic stresses in Hackensack bascule *340
Palotan, A.: Jerusalem pipe lines 415
Paulet, E. G.: Spacing suspension points for precast concrete piles *260
Pittenger, H. W.: Motors and control for movable bridges *970
Pollog, C. H.: Gas-main accidents in Europe 496
Pope, J.: Rock asphalt strip in concrete road makes center line j*661
Potter, A.: Observations on pipe materials 925
Priest, H. M.: Gas welding design on mill building *928
Gas-welding shop fabrication of mill bldg. *964
Purdy, A. C.: Sewage-works requirements and stream pollution studies *813

Ramser, C. E.: Terracing to combat soil erosion losses *848
Randolph, R. I.: Disapproval of Niagara Treaty 1 231
Raube, W. C.: Goodyear-Zeppelin airship dock *1008

*Illustrated: a, abstracts; e, editorials; j, job and office; l, letter; n, news

Rauch, J. D.: Safeguarding grade crossings ..... l 271
Reed, C.: Hydraulic jump design for conduit ..... •224
Reese, R. C.: Special charts simply design problems ..... j•661
Robeson, F. A.: Airport drainage ..... •853
Ross, G. B.: Pittsburgh airport ..... •17
Russell, G. S.: Springfield, O., new sewage-works ..... •731
Ryves, R.: Lloyd dam in India ..... •362

St. Clair, C. R.: Traveling gallows frame used in placing bridge girders ..... •375
Sandford, P. A.: Spiral flow in activated-sludge process ..... l 1021
Saucedo, V.: Mexico, nation-wide road system ..... •282
Savage, J. L.: Stony Gorge dam ..... •46
Saville, C. M.: Cast iron, steel or reinforced concrete pipe ..... •400
Schenker, A. W.: New welded girder splice ..... j•507
Schwam, M.: Locknut keeps dividers open ..... j•309
Record of drawing changes ..... j•586
Serby, M.: Good-view factor in stadium design ..... •59, l 898
Shaw, W. F.: Keeping concrete pipe damp during curing ..... l 430
Shelby, W. W.: Road oil-heating plant ... •100
Sheridan, A. V.: Engineers and architects. l 666
Sherman, C. W.: Hydraulic formulas incorrect for partly filled pipes ..... •253
Sherman, LeR. K.: Illinois waterway .... l 113
Shnable, E. R.: Waterways list requested. l 508
Simpson, H. S.: Traffic accidents—correction ..... l 737
Slack, S. B.: Measuring strain and temperature in bridge ..... •336, l 545
Slocum, S. E.: Combating traffic vibration and noise 688
Smith, L. B.: Why the Mississippi meanders ..... l 899
Snow, J. P.: More on the O'Fallon decision ..... l 156
Steinman, D. B.: Rope-strand bridge at Grand'Mere, Quebec ..... •841
Stephenson, H. K.: Shipping pieces longer than one car ..... j•506
Sterrett, E.: Dipping ends of cable strands in solder j148
Stowell, R. G.: Pneumatic caissons for Vicksburg bridge ..... •422
Streeter, R. L.: Lighter structures—the aluminum industry ..... •487, •535
Stringer, H.: Notes on German waterworks 580
Sutton, J. G.: Varying head in testing drainage pumps ..... •177

Tai, J. E. P.: China's progress in road construction ..... l 430
Tartt, P. B.: Pneumatic caissons improvised from open cylinders ..... •851
Thayer, D. P.: Long gage length device. j•505
Todd, W. S.: Collapsible form facilitates making of blocks to support reinforcing ..... j•505
Torpen, B. E.: Bull Run storage dam ..... •204
Totti, E.: Shortcomings of engineers ..... l 71
Trayer, G. W.: Tests of frame wall construction ..... •656
Tucker, H.: Moderate-cost testing laboratory ..... •608

Uhr, S.: Pouring building columns ..... l 271

Van Duzer, W. A.: Road construction without detouring ..... •884
Van Norden, S. L.: Glen Ridge water supply fully metered 347
Van Pelt, S.: Waterways — editorials criticised ..... l 271

Waldrop, J. D.: Grassed shoulders resist erosion ..... l 627
Warren, W. A.: Plea for deeper channel for Mississippi ..... l 471
Waterman, E. L.: Imhoff settling tank-correction ..... l 898
Welty, H. T.: Repair of roof girders in street underpass ..... •642
Westcott, C. H.: Covered stadium at Chicago ..... •610
White, A. H.: Bridge heights and the Mississippi ..... l 71
Whitie, L.: American engineer looks at Russia ..... •652
Spain through the eyes of an American engineer ..... •57
Whitehorne, E.: Industrial reconnaissance of New England 862
Wiedeman, H. F.: Supplementary water supply for Kingsport, Tenn. ..... •219
Wiersema, H. A.: Harahan repaired after fire ..... •226
Wilder, R. M.: Auxiliary welded beams. . j•308
Williams, G. M.: Effect of aggregates on water ratio of concrete ..... l 71
Williams, H. S.: Traffic vibration and noise ..... l 898
Wilson, W. A.: Habits of mosquitoes .... l 431
Winsor, F. E.: Transmission of water under pressure 925
Wise, A. J.: Water-tamping of fills .... •1016
Witkin, Z.: Falsework for construction of dome ..... •257
Wolfe, W. S.: Detroit, Union Trust Bldg. •4
Hangers carry expansion ends of roof trusses ..... •801
Wright, F.: Shortcut for beam computations j147

Zinn, A. S.: Work of the French on the Panama Canal ..... •290

•Illustrated: a, abstracts; e, editorials; j, job and office; l, letter; n, news